Cover image by Borislav Kechashki

Igor Kudryavtsev
Moscow based 3D artist

Gallery Artist
Gallery - 10 of the best images from around the world!

Desert Gas Station
Project Overview by Eugenio Garcia

ARMOURED BEAR

Ever wondered what a Polar Bear would look like armoured up, well here's your chance. Read how Borislav Kechashki took this fearsome animal and made him even deadlier, in our epic Armoured Beast tutorial series.

Power Plugs
Andrzej Sykut shows us hows add a Matrix inspired plug socket to the back of our necks, in the third part of our Cyborgs tutorial series.
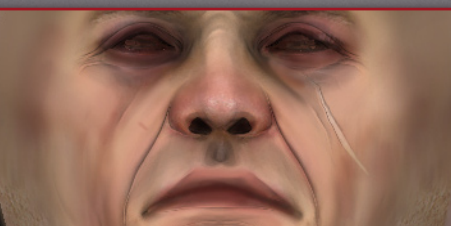
Not all baking is done in the oven!
As **Gavin Goulden** draws to a conclusion in our **Sword Master 2** series, he shows us how to create texture maps commonly used in today's video games.

The Final Topology
The third chapter in **Diego Maia** insightful series, see him make final adjustments to his model, in preparation for the rigging process.

EDITORIAL

Hello and welcome to the February issue of 3DCreative. I hope the year has started well for you and that you have had a creative January. This month's magazine is sure to have everything you need to help you get stuck into some exciting new projects and to fill you head to toe with inspiration.

We will start by talking about the stunning image on the cover of this month's issue. I hope you all enjoyed the first chapter of our Sculpting Armored Beasts series. In this month's issue Borislav Kechashki shows us how he designed and sculpted his outstanding armored Polar Bear. I am sure your jaw dropped to the floor as mine did the first time you saw his amazing image. The good news is that there is more stunning work from this series to look forward to so if this is up your street you have got to make sure you keep up with the rest of the chapters from this amazing series.

Gavin Goulden has done an amazing job of talking us through how to create our games characters. I hope you have been following his steps and developing your own designs. I would love to see some of your own characters when the series has finished so send them through to me at simon@3dtotal.com. In this issue Gavin talks us through how to how to create believable textures for our characters. We wrap the series up next month when Gavin will be showing us how to pose and render our models.

Our Cyborgs series has been really interesting so far and has opened our eyes to a host of new techniques and ideas. This month's tutorial is no exception! Andrzej Sykut continues to show us how to create realistic models and how to integrate them into to our photographs. This month's subject matter is influenced by The Matrix and I am sure that you will agree that the final result of the tutorial is outstanding. Keep your eyes out for next month's tutorial where Andrzej will be doing something a little different.

I hope that Diego Maia's tutorials about Topology have proven to be helpful and informative. In this month's issue he guides us through the process of cleaning up Topology and making adjustments to our models.

I am sure that you will agree that the magazine is full to the brim with exiting tutorials this month! But the great content doesn't end

CONTENTS
What's in this month?

FREE STUFF!
Wherever you see this symbol, click it to download resources, extras & even movies!

DOWNLOAD RESOURCES

there. We have a great interview with Igor Kudryavtsev, a fantastic Making of by Eugenio Garcia and a inspirational gallery featuring work from Gustavo Rios, Christopher Brändström, Anto Juricic and many more talented artists.

3dcreative

Issue 078 February 2012

Cover image by Borislav Kechashki

3dtotal.com

Igor Kudryavtsev
Moscow based 3D artist

Gallery Artist
Gallery - 10 of the best images from around the world!

Mecha Girl
Project Overview by Rafael Grassetti

ARMOURED BEAR

Ever wondered what a Polar Bear would look like armoured up, well here's your chance. Read how Borislav Kechashki took this fearsome animal and made him even deadlier, in our epic Armoured Beast tutorial series.

Power Plugs
Andrzej Sykut shows us hows add a Matrix inspired plug socket to the back of our necks, in the third part of our Cyborgs tutorial series.

Not all baking is done in the oven!
As Gavin Goulden draws to a conclusion in our Sword Master 2 series, he shows us how to create texture maps commonly used in today's video games.

The Final Topology
The third chapter in Diego Maia insightful series, see him make final adjustments to his model, in preparation for the rigging process.

Get the most out of your Magazine!

If you're having problems viewing the double-page spreads that we feature in this magazine, follow this handy little guide on how to set up your PDF reader!

SETTING UP YOUR PDF READER

For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free, here: DOWNLOAD!
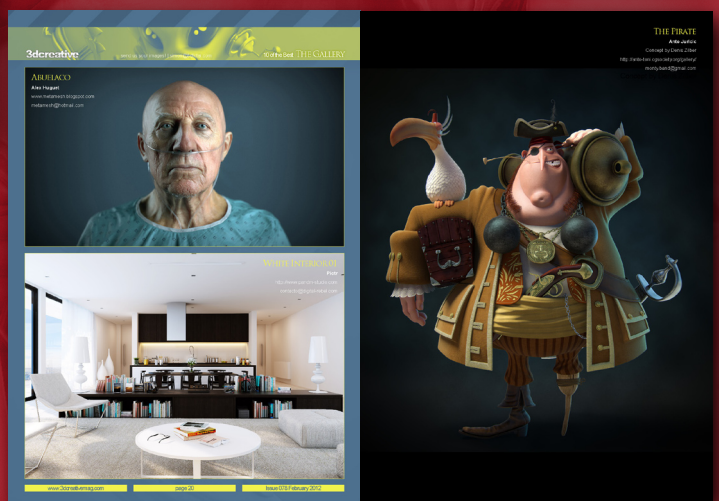
To view the many double-page spreads featured in 3DCreative magazine, you can set the reader to display 'two-up', which will show double-page spreads as one large landscape image:

1. Open the magazine in Reader;
2. Go to the VIEW menu, then PAGE DISPLAY;
3. Select TWO-UP CONTINUOUS, making sure that SHOW COVER PAGE is also selected.
That's it!

CONTRIBUTING ARTISTS

Every month artists from around the world contribute to 3DCreative, and you can find out a little more about them right here! If you'd like to get involved in the 3DCreative magazine, please contact: simon@3dtotal.com

GAVIN GOULDEN

Gavin Goulden is a character artist for Irrational Games working on Bioshock Infinite. With 6 years games industry experience, he has contributed character and environment art assets to multiple titles including Dead Rising 2, The Bigs 2, Damnation and FEAR 2.

http://www.gavimage.com/
gavin@gavimage.com
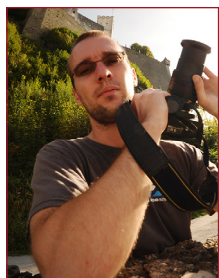
ANDRZEJ SYKUT

When it comes to CG, Andrzej is a bit of a generalist, but lighting is where the fun is for him – that, and post-production/compositing. He currently works at Platige Image, and also does some freelancing as well. While he enjoys his work, it's also time-consuming, so he tries to get away from the computer as often as possible to enjoy the world. http://azazel.carbonmade.com/
eltazaar@gmail.com

BORISLAV KECHASHKI

Borislav Kechashki lives in Sofia, Bulgaria where he graduated from his architecture degree a year ago. After working for more than 3 years as an environment artist in a small game studio, he is currently working as a 3d character artist at Ubisoft Sofia.
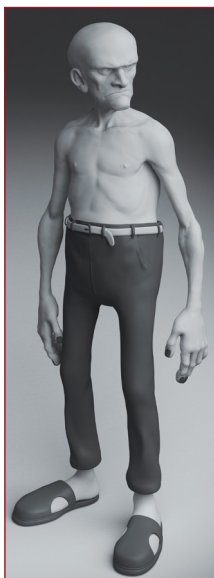
http://galero.cghub.com/
b.kechashki@gmail.com
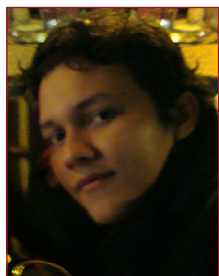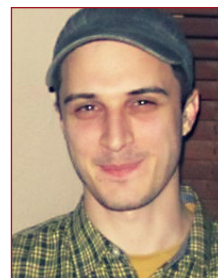
DIEGO MAIA

Diego Maia is a freelance 3D modeler and concept designer from Brazil. He has worked for some of the biggest advertising companies in Brazil, and has also been teaching drawing classes at Melies School for three years.
http://maia3d.blogspot.com/
maia3d@gmail.com

WOULD YOU LIKE TO CONTRIBUTE TO 3DCREATIVE OR 2DARTIST MAGAZINE?

We are always looking for tutorial artists, gallery submissions, potential interviewees, 'making of' writers, and more. For more information, please send a link to your portfolio, or send examples, to: simon@3dtotal.com

IGOR
KUDRYAVTSEV

Igor Kudryavtsev is a 3D artist living in Moscow, Russia. During his career he has worked on numerous projects from animated feature films through to computer games and commercials. He now works for a small advertising company which he admits he prefers as it gives him more time to dedicate to his own work.

"I THINK MOST OF ALL I'M FASCINATED BY A SYNTHESIS OF STYLIZED AND NATURAL-LOOKING ASPECTS IN ONE PIECE"

Having looked at your website I can see that you have worked within a number of different fields, but which have been the most suited to you and why?

The genre best suited to me as an artist was full-length animation films, but in some ways I am happier working in advertising. I think it is because although I am now less creatively involved I have a more flexible schedule, and so I have more time and energy to concentrate on my own projects. I am inclined to believe that now is not the best time for feature-length animation in Russia...

Why is it not a good time for feature length animation in Russia at the moment?

The main problem is the box office. It is believed that an original animated film that is not a sequel, created in an ordinary studio, cannot make a profit in the Russian box office if it exceeds a budget of three million Euros. To create high-quality films such an amount is not enough.

The majority of Russian investors avoid long-term projects that imply the production of three-four films in a row, with the prospect of making a profit in several years. Therefore, the development of an animation industry is very slow and the quality of produced films is also very low.

Has your fondness and experience of travelling had much of an impact on your work and artistic development or do you feel, like many people, that it is rooted in your upbringing?

Of course! Seeing many countries and cultures, and exploring monuments from the past and natural treasures is a great source of inspiration. Also, taking photos of many different places and scenarios helps me to improve my skills in composition, lighting and other aspects, which are very useful in my art.

What do you feel have been the most significant influences on your work from your time spent travelling?

I think it is the act of travel itself. As for specific countries, each one can be a limitless source of inspiration, but I feel that more northerly countries are better attuned to my vision.

What is it about stylization and the natural world that fascinates you?

I think I'm mostly fascinated by a synthesis of stylized and natural-looking aspects in one

piece. I always try to make even the most "cartoonish" of my characters look believable, and naturally blend in with a more realistic and natural background.

As a general rule, what aspects of characters benefit from stylization and which parts are best left more realistic?

I like solutions with a stylized silhouette and general form of the character. I also like Disney-style poses and movement.

However the best realistic components for me are shading, lighting and post-effects.

What degree of your work is post-production and what types of tasks do you generally reserve for this process?

As a rule my post-production involves color correction and effects such as atmosphere, glow, film grain, vignetting, lens distortion, chromatic aberrations and so on. In rare cases I use render passes and/or layers to implement more complex effects such as depth of field.

If you could summarize some of your key techniques into a short list of tips what would they be?

If I were to compress everything, it would be something like this: Extraordinary, interesting character(s), strong composition and lighting along with fine details across every aspect of the image.

Which artwork are you most proud of and why?

Of course it is always my next artwork! Each time I try to improve my skills, and every time it seems to be a really good piece!

Where would you say you draw most of your ideas and inspiration from and what new subjects, if anything, would you like to explore in the future?

Most of my subject matter comes from the books I read, artworks I see and places I visit. For example, my work *Nordlystroll* is a synthesis of Norwegian folk art, great illustrations by Theodor Kittelsen and conceptual aurora music from a book about the Arctic. But there are some exceptions to this rule. The piece entitled *Are You sure that it will be the Life After?* is an illustration of my wife's dream! In the future I think I will continue to search for inspiration in my everyday life, but at the moment I am very interested in steampunk.

THE

GALLERY

FALLING BLOOM

Andrius Balciunas

http://www.cryinghorn.com

cryinghorn@gmail.com

(Right)

FRANKENSTEIN BUST

John William Crossland

http://johnwcrossland.co.uk

Jwcorvus@gmail.com

(Left)

The Flash Noir

Christopher Brändström

http://www.badrobots.se

christopher@brandstrom.as

CHARMING PIRATE

Gustavo Rios

http://gustavorios3d.blogspot.com/

gustavorios2@gmail.com

ABUELACO

Alex Huguet

www.metamesh.blogspot.com

metamesh@hotmail.com

WHITE INTERIOR 01

Piotr Lusnia

http://www.pandm-studio.com

hcpiter@gmail.com

THE PIRATE

Anto Juricic

Concept by Denis Zilber

http://anto-toni.cgsociety.org/gallery/

monty.band@gmail.com

Blast Core

Matt Burdette

http://mattburdette.com

matthew.burdette@gmail.com

CAPTAIN PROTON

Luis Arizaga

http://www.digital-rebel.com

contacto@digital-rebel.com

SWORD MASTER 2

CHAPTER 5 - TEXTURING

In 2006 3DTotal created some groundbreaking training that quickly made a name for itself as one of the best 3D training resources available; that series was called the Swordmaster! Well five years later the Swordmaster is back and better than ever. In this series industry professional Gavin Goulden will be talking you through how to take a concept and turn it into a top quality character ready for use in a game. From basic modeling through to sculpting and texturing, Gavin will cover every step in great detail so that even an inexperienced 3D artist will be able to comfortably follow this series.
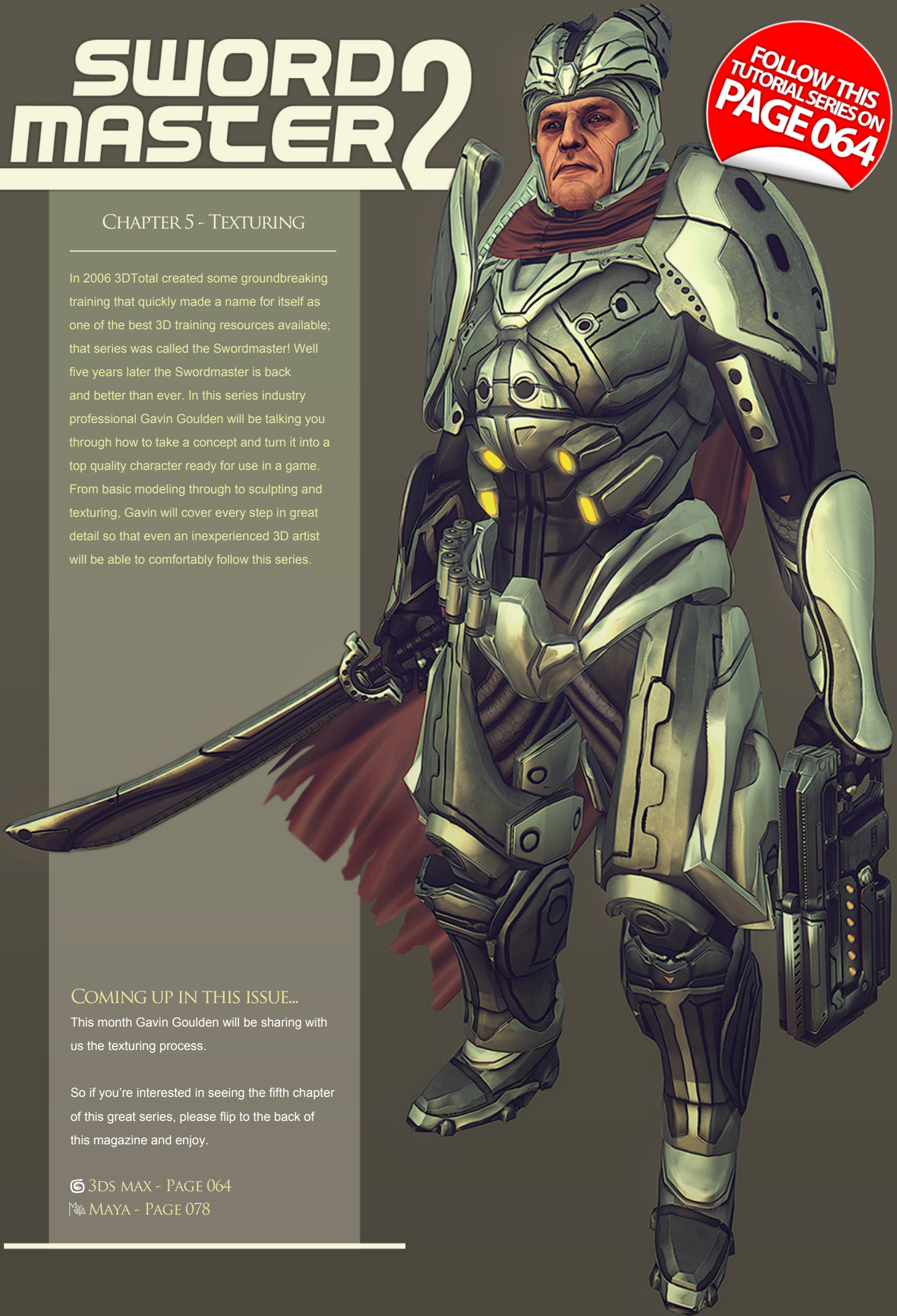
COMING UP IN THIS ISSUE...

This month Gavin Goulden will be sharing with us the texturing process.

So if you're interested in seeing the fifth chapter of this great series, please flip to the back of this magazine and enjoy.

CYBORGS

MIXING 3D & PHOTOGRAPHY

Mixing 3D and photography is a real skill and you've probably seen it attempted with varying results. In this series Andrzej Sykut will be showing us how to achieve the perfect blend of 3D and photography with the coolest of subject: cyborgs. When approaching this task there is a lot to consider. Firstly you must think about the photograph and the lighting you want in your image, then you have to think about how you will create the 3D in the image, and once you have this you will need to create the same lighting on the 3D aspect as in the photograph... the list goes on and on. Tackling this without direction would be difficult, but with the help of these tutorials you can come up with some stunning results.

Chapter 02 - Power Plugs

Software used: 3ds Max

The back of the head is a pretty obvious place for an implant. At least it has been since *The Matrix* came out! It can have some interesting uses; for a start it makes the owner of said implant look vulnerable. When you combine that with a machine that connects to the socket, (particularly a pointy and dangerous-looking one) you get a nice base for an image. That's exactly what I did here. The general workflow

is very similar to the one I described in the previous article, but it was more tricky this time. So instead of repeating myself, I'll focus on the differences and various difficulties I encountered.

Plate Photography, Camera and Geometry Reconstruction

Since using the Autodesk Photo Scene Editor to track the camera proved to be a good idea last time, I wanted to use it again. But since I did the shoot in my basement, and there isn't a lot

of space in there, I was only able to capture a few additional angles, apart from the main plate photo (**Fig.01**). Nevertheless it worked quite well again. The model and texture had some artifacts, but nothing major. The texture streaks didn't matter, as the geometry was to be camera mapped anyway, and the model errors were easy to fix by deleting some faces.

This time I didn't capture HDRI's as there is nothing to see really, just a dark basement. Since I knew there would be a lot of metallic parts in the scene, I would need a better Reflection map anyway. And for lighting purposes I decided that duplicating my setup, consisting of one strong light, would be easy enough.

I didn't like the composition of the plate photo and it needed some cropping, but I left it for the compositing stage, so it was easier to line things up.

Modeling

For the sockets I re-used some models from the previous article and added some simple geometry, which was quick and easy. For the needle-things I did some research on pipe connectors and the like, and modeled the shapes in 3ds Max and ZBrush (I used ZBrush for the welds using the ClayTubes brush with a round alpha). Hoses were done using the Hose Advanced Primitive, which is very handy as all the ridges are procedural and easy to tweak. The scar tissue around the sockets was sculpted in ZBrush using the DAM Standard, ClayTubes, Rake and hPolish brushes. Rake was especially handy for stretching the skin. The ClayTubes brush with a round alpha proved to work nicely on the veins, I just needed to smooth the ends a bit. Essentially this is all similar to the last tutorial.

Layout and composition

After tracking the camera I quickly imported my socket models and mocked-up the scene
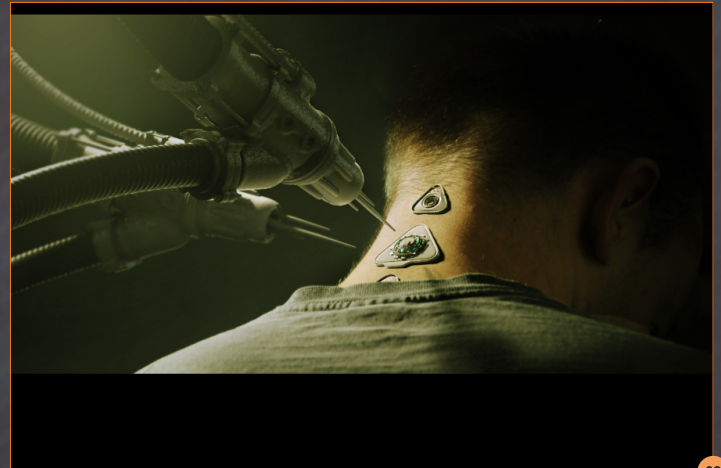

01

02

03
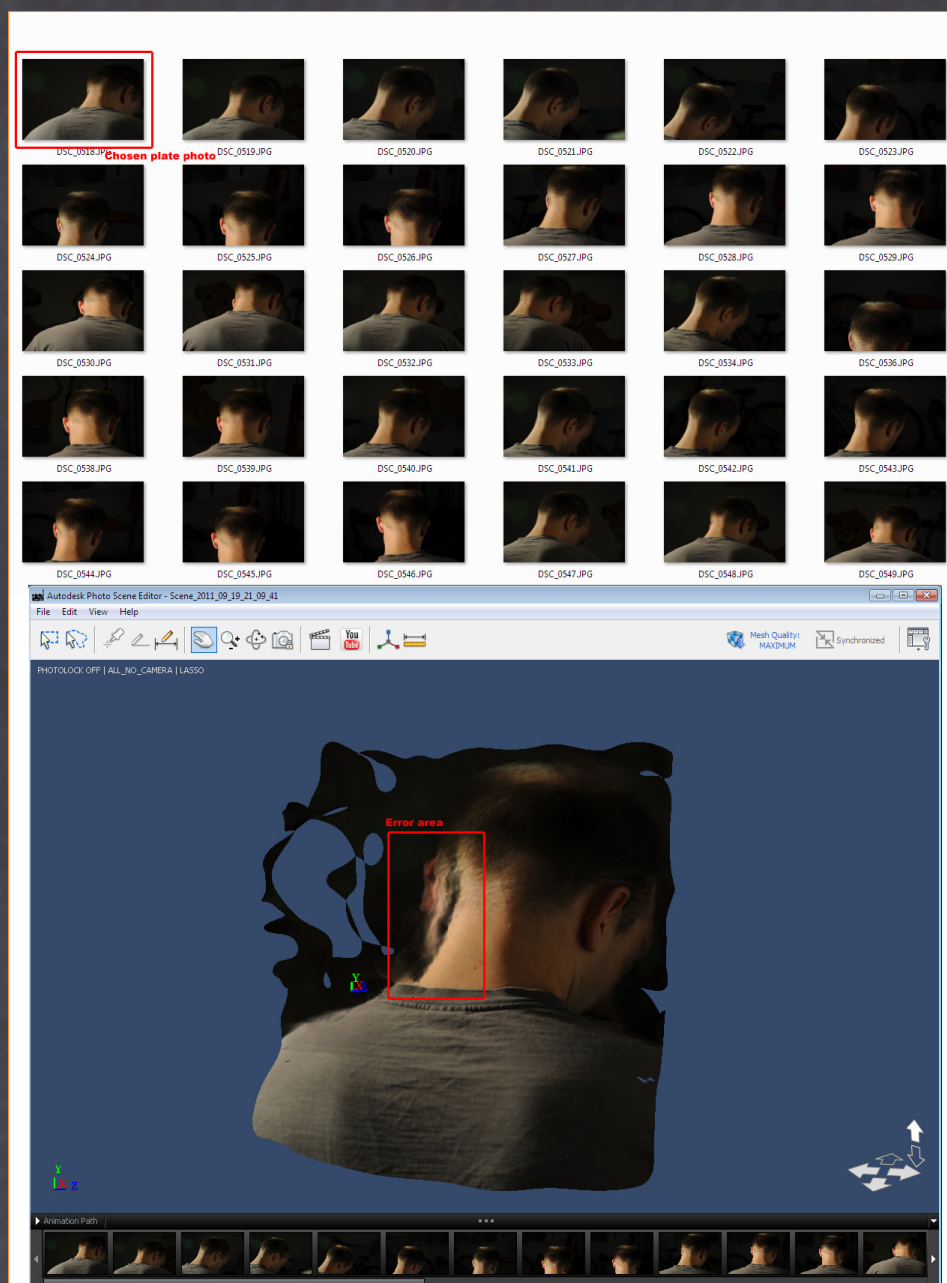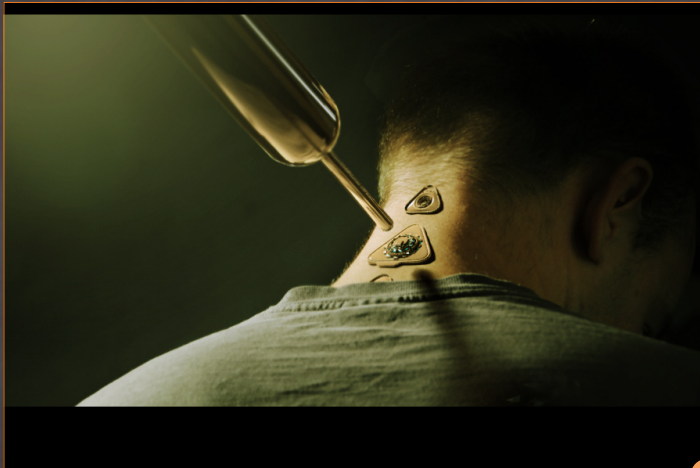
(**Fig.02**). I also roughly matched the lights. The asymmetrical black letterbox is a cropping guideline. In line with my inspiration, I did a basic color correction towards a green hue, crushed some shadows and added some vignettes, just to see how the image would look. After modeling the needle-things, I placed them instead of the mock-up objects and again did a test render and test compositing (**Fig.03**). I did that after every major addition to the scene, tweaking the shaders and lighting constantly (**Fig.04**). It's easy to spot potential problems this way.
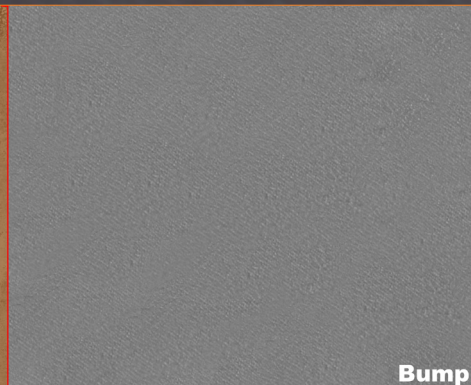
LIGHTING AND RENDERING

While doing the mock-ups and tests, everything seemed to look right. After importing the sculpted scar and doing the first tests with the skin shaders it turned out to be not-so-right after
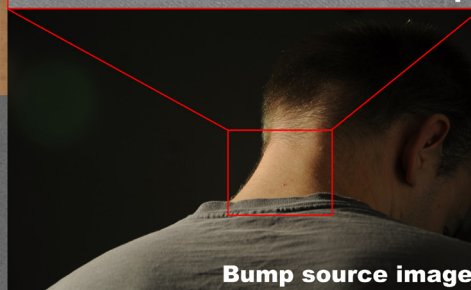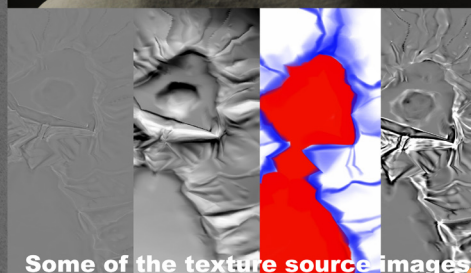

04

all. I re-did most of the lighting, focusing solely on the skin and hoping the rest would fit in. It took a lot of tweaking, adjusting light intensities, texture colors to even roughly match the look of the real skin. (The base texture was sampled from the plate photo and made tileable, then blurred to get rid of the detail. Detail was then added by painting in ZBrush and some Surface Map renders from 3ds Max, etc). It is nowhere near perfect, but I got it to the point that it just needed some post-production and color correction to blend in.

I matched the bump of the skin by running a High Pass filter on the plate, cropping it to the neck area, and using the Heal brush to clone out the blurred parts. The shader is a modified Vray SSS2. You can see the texture in **Fig.05**. I had to play a bit with the scale parameter to

Diffuse

Bump

Bump source image

Reflectivity

Some of the texture source images
05

compensate for the random scaling of the scene from the Photo Scene Editor. The light setup is shown in **Fig.06**.

Fortunately, the light setup for the skin worked well enough for the metal parts too. Seems there's a lesson here: match the skin first and the rest will follow. As always I did the rendering in V-Ray, with the GI turned on. I used Linear Multiply color mapping so the colors from the photographic plate were not distorted, but this means I had to be careful with light intensities, as it's very easy to get nasty, burned-out whites.

I rendered the various parts of the image separately, for better control in the compositing process (**Fig.07**). I also rendered a ZDepth pass, Multi Matte Elements (great for creating masks for various objects in one go), and some other Element passes. Not all were used, but it's better to be prepared in cases like this image.

Compositing

Compositing was pretty straightforward, but even here I had to employ some tricks. I wanted to add some out-of-focus smoke behind the character, and some pipes in there as well. I needed a way to quickly extract him from the background. There's a magic feature in After Effects 5 called Roto Brush that does just that and does it quickly and easily (double-click on
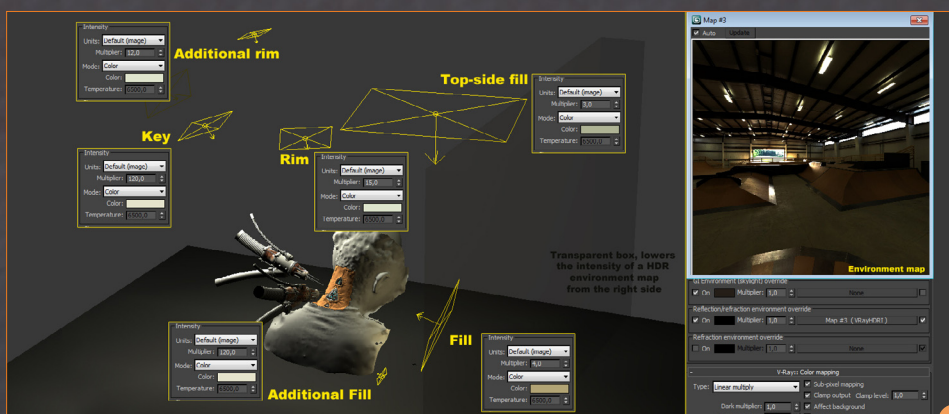
a layer you want to mask and look for the Roto Brush tool icon on the toolbar). Paint a bit in the foreground and, with Alt key pressed, paint on the background (**Fig.08**).

This feature worked well, but it can be unstable sometimes and occasionally crashes when used on a moving image. The smoke itself is a blurred photo of a real smoke, and some solids with feathered soft masks.

The pipes in the background are modified, needle-things from the foreground that have been scaled, rotated and extended. The parametric nature of the hose objects came in very handy here.

DOF and blurring effects were using the Frischluft plugins, which work much better and faster than standard After Effects functions.

The main color correction was done using Curves, individually shaping the RGB curve and every one of the channel curves as well giving them a subtle s-shape. I reduced the reds and blues, and boosted the greens. It's handy to keep that kind of correction separate, so you can turn them on/off and see what they do.

The piece that required the most attention was the skin. It had to be masked out, blended with the real skin and color corrected to match. It took me some trial and error to get the things like subtle red-tinted shadow edges right.

The final touches consisted of some grain, vignettes and subtle texture overlays. After sleeping on it I applied some Dodge/Burn in Photoshop, which brightened the carbon fiber parts of the sockets and darkened some shadows. It is much faster to do it this way than
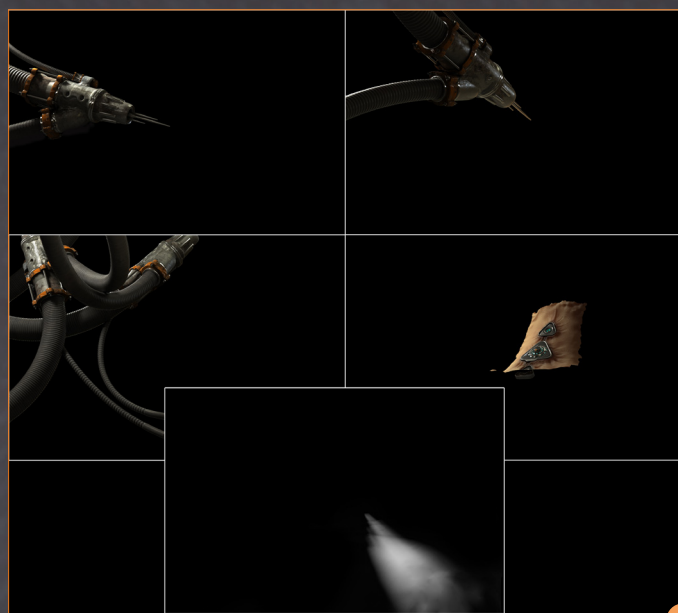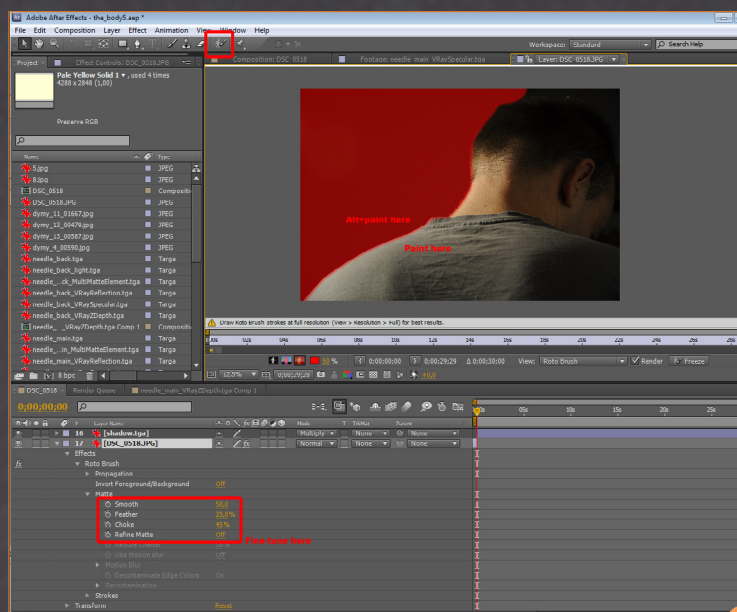
messing around with masks and layers in After Effects. The final image can be seen in **Fig.09**. It was the kind of project that starts off looking nice and easy, and then fights you all the way to the end!

Andrzej Sykut

For more from this artist visit:

http://azazel.carbonmade.com/

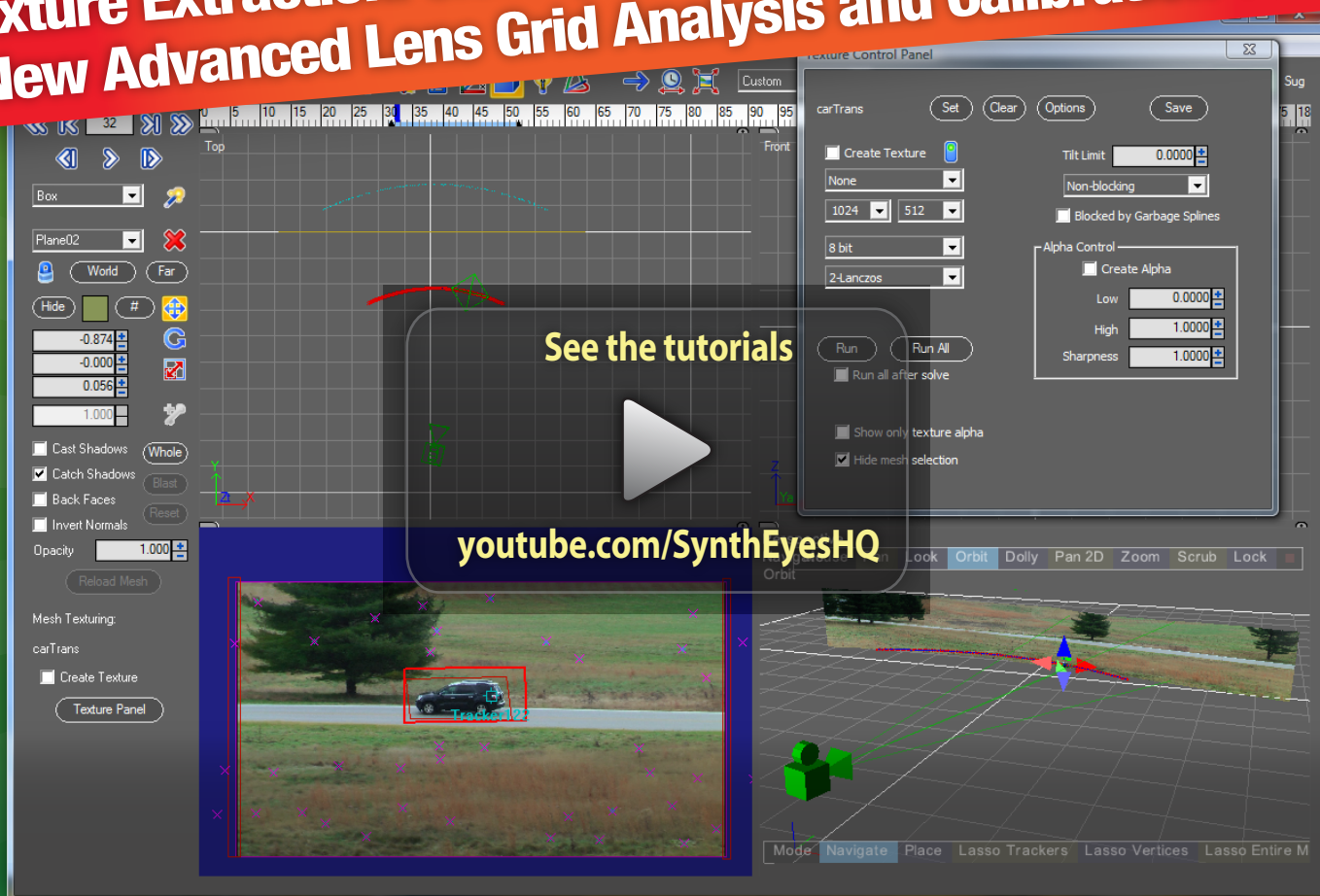Or contact him at:

eltazaar@gmail.com

ROCKETBOX LIBRARIES
STOCK 3D MODELS
AND ANIMATIONS

READY TO USE
HIGHEST QUALITY STANDARD
RIGGED AND ANIMATED
OPTIMIZED FOR REALTIME
FREQUENTLY UPDATED WITH NEW MODELS

SEE THE COMPLETE CHARACTERS HD SERIES

WITH FACIAL ANIMATION RIGS

WWW.ROCKETBOX-LIBRARIES.COM

Rocketbox Libraries
www.rocketbox-libraries.com

ARMORED BEASTS

ZBrush is a formidable piece of software that is capable of so much. The possibilities are endless and the only restriction is your imagination. In this series our artists will be flexing their creative muscles to show us how to create not only the organic forms of their beasts, but also the non-organic forms that make up their armor and weaponry. Follow the creation process from initial concept through to final illustration and find out how to create some mind-blowing armored beasts!

CHAPTER 02 - BEAR

Software used: ZBrush

I was really excited about the idea of making an armored bear, so from the very start I had plenty of ideas in my head. I began by collecting all kinds of reference that could be useful at some point. I knew I was going with a polar bear so I started gathering images of real polar bears, plus different types of armor I found interesting. I also looked for different types of artwork, both 2D and 3D, that could serve as an inspiration.

As it is a creature living in a cold and unfriendly environment I thought it would be cool if the armor is like the protection used by hockey players, so I was inspired by Casey Jones and Jason Voorhees. So that was my starting point and the main inspiration for the armor. I began by doing some fast sketches just to focus the idea before going to ZBrush, although I try not to spend too much time working in 2D because I'm not that good at it .So this is what I came up with (**Fig.01**).

When I was happy with the concept I moved into ZBrush to continue concepting directly in 3D using ZSpheres and DynaMesh. At this point
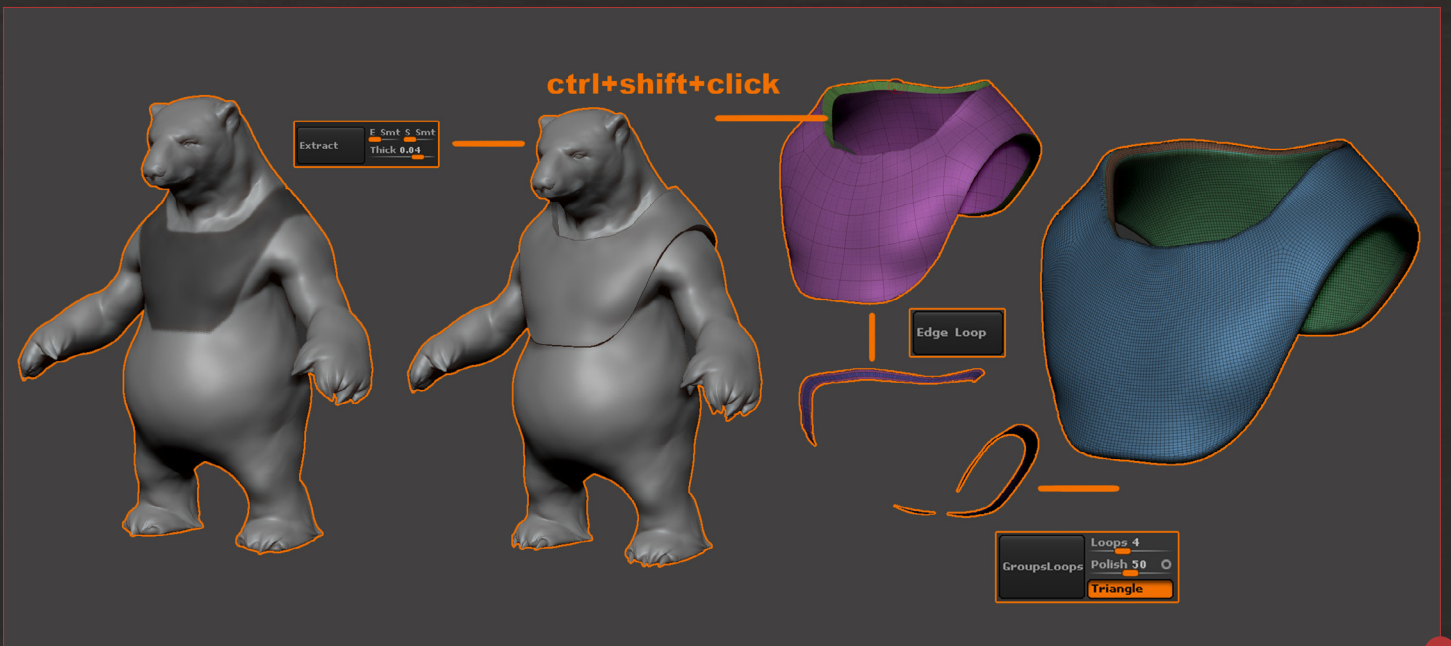

I tried not to go into the details at all, playing mainly with a large Move brush on a very large scale, just trying to make the forms and silhouette more interesting. By looking at a lot of real polar bear photos I tried to capture all the distinct features of the animal, like the profile of the head, their unique eyes, bulky paws and the overall body proportions (**Fig.02**).

ctrl+shift+click

Extract — E Smt S Smt Thick 0.04

Edge Loop

GroupsLoops — Loops 4 — Polish 50 — Triangle

It's good to know from the very start what the final pose will be and the feeling you want to achieve as this will help you plan your modeling and posing more efficiently. I also did some really fast mock-ups of the main armor plates to see how they change the overall silhouette. I did that by masking where the plate would be, extracting it, adding some more loops and then polishing it (**Fig.03 – 04**). As always, I worked from larger to smaller forms.

When all the main forms were there and I was happy with how they worked together, I decimated all the different elements and moved to 3ds Max to retopologize. Although this step is not really necessary I prefer working with better topology and polygon distribution. It will be a lot easier when making UVs if you use

decimated mesh from zbrush   **retopologized mesh**

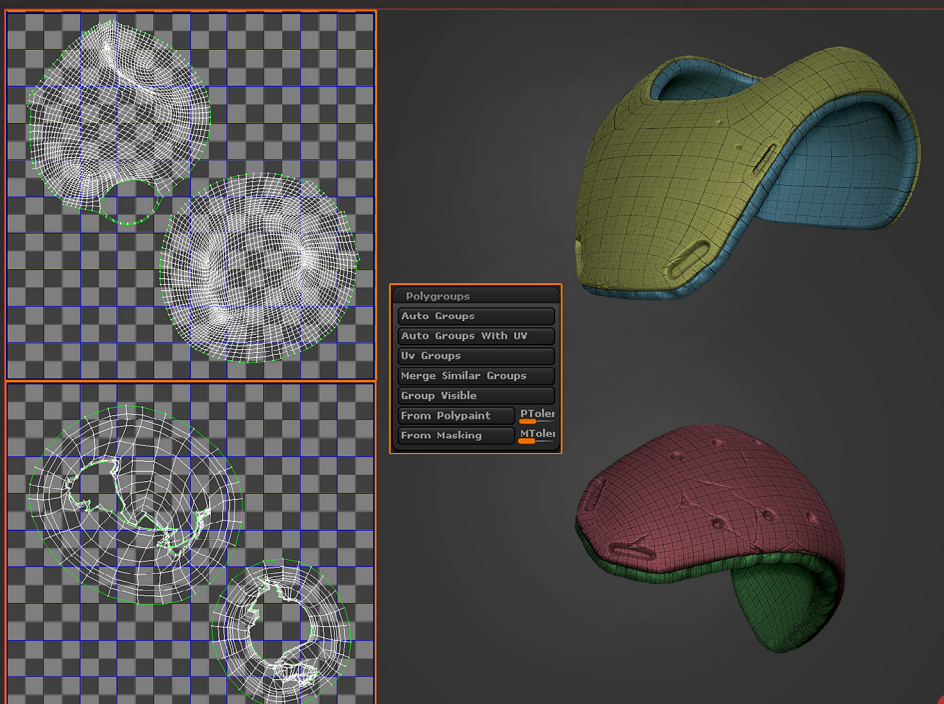
☑ Bevel Edges
Bevel Spline: None
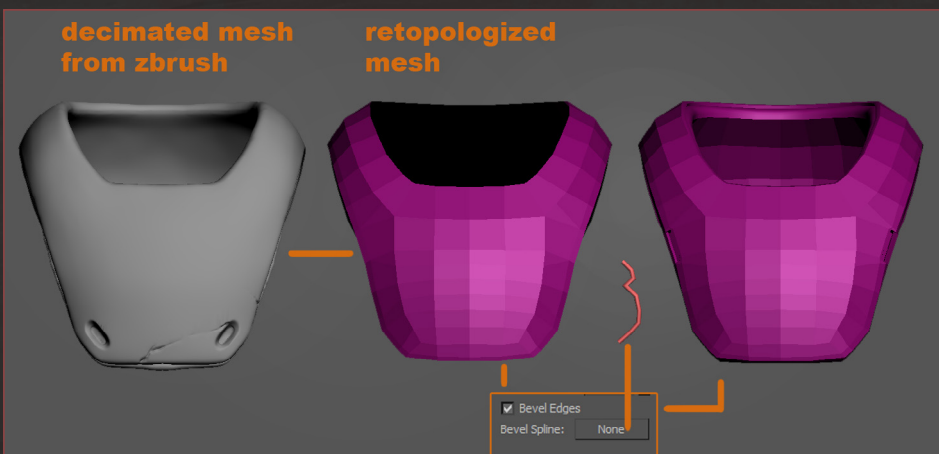
this approach. I still find 3ds Max a lot easier and more precise for making hard surface models, so I made the armor plates there. I started with a clean and simple retopology over the decimated meshes from ZBrush using the Graphite tools and then, using the Shell modifier with a spline for the profile, made the separation of the different elements more precise (**Fig.05**).

For some of the plates I made very fast UVs, just separating the elements which were made from different materials so I could polygroup
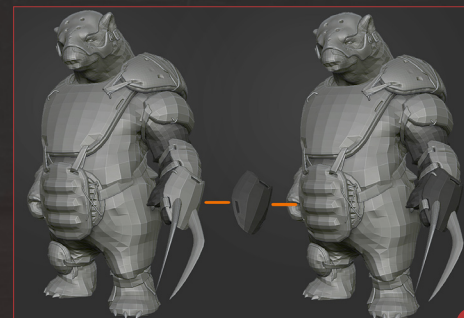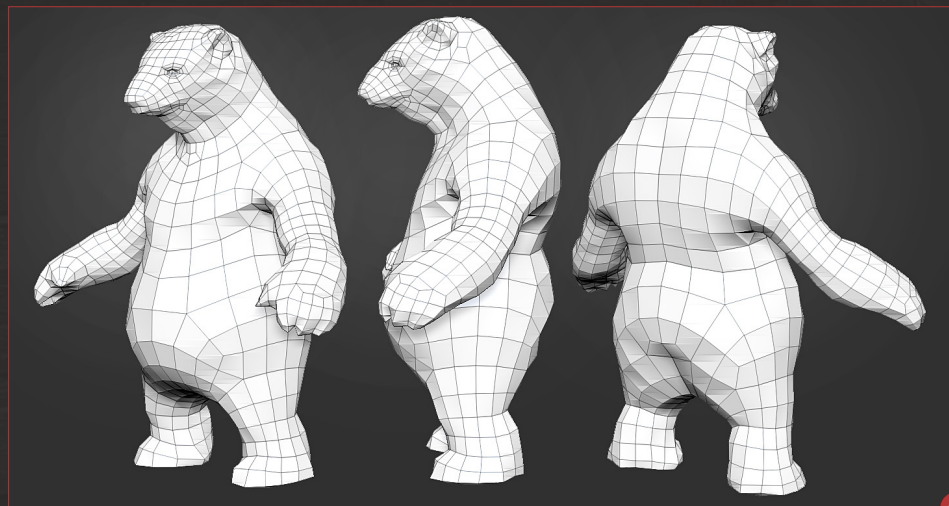
them by UV later in ZBrush (**Fig.06**). I also retopologized the bear itself (**Fig.07**).

When I was done with that I brought all the newly created meshes into ZBrush and projected the details on them before I continued sculpting. At this point I pretty much knew what the final pose would be so I transposed the model, because posing it later on with all the fine elements and hard rigid parts would eventually lead to stretching and unwanted overlapping. It's important when transposing a model with hard surface elements to keep them from deforming. This is easily done by isolating them before or after the topological masking (Ctrl + drag over the model) and by Ctrl + clicking on the canvas to mask or unmask them fully (**Fig.08**).


When I was designing and detailing it I tried to keep in mind that the armor should look believable and functional, and to think about how the different parts attached to one another and the bear. Another thing for better realism was to change the fur behavior around the armor to make it look like it is actually being affected by its pressure. For all the straps I used extracts from the bear's mesh, using the same method as described earlier.
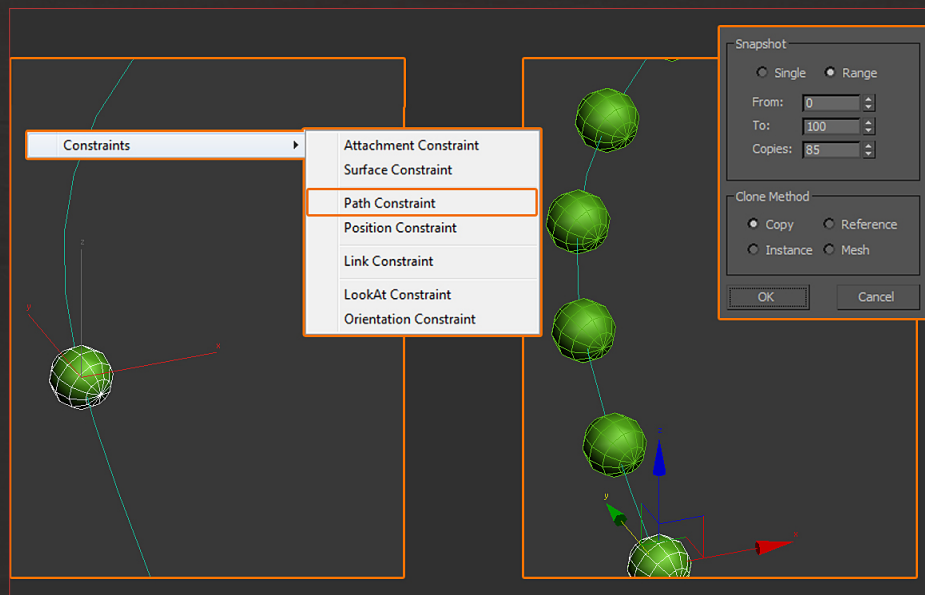
At this point I polymodeled all the weapons, cords and tiny elements that make the armor look more functional. The cords are just splines with thickness made over the decimated model as a guide. For the dog tag's chain I used a spline and a sphere, which was path constrained to it, and then played with the snapshot tool until I had the amount of balls I wanted on it (**Fig.09**).

3dcreative
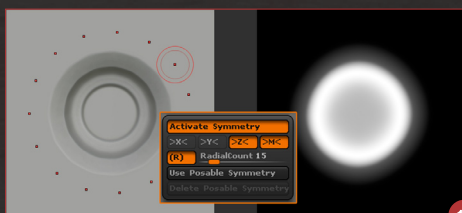
I mainly used the Dam Standard brush to make a final pass and to add all the scratches and damage on the armor. I also used it with the SnakeHook brush to make the clusters of fur on the bear's body. To keep all the holes on the plate the same I made two alphas, starting with a plane in ZBrush, then used the radial symmetry to sculpt the detail I wanted. I then grabbed the alpha and placed it using DragDot (**Fig.10**).

For the texturing I first quickly mapped the body using the UV Master so I could adjust the texture in Photoshop later if needed. I began by filling the bear with a slightly modified SketchShaded2 material. I only changed the

Cavity parameters and the specular curve, just to enhance the hairs a bit more. The texturing itself was quite simple. I just worked from larger to smaller details and used a lot of Cavity masks with a brush using spray stroke and different alphas to add a bit of variety.

At some point I opened the texture in Photoshop for some color correction then moved it back to ZBrush to polypaint from the texture. Texturing the plates was really simple, I just masked the cavities, inverted them and then painted some dirt in the cracks. The UV splitting of some of the plates came in really handy here because I easily polygrouped them by UV and then very precisely and easily isolated the half I wanted to paint on. I also made a couple of dirt alphas from photos to add some more variety and noise to the textures.

The first thing I always do before beginning the rendering of the different passes is save my final view on a file (under the ZAppLink properties), so if ZBrush crashes I can always return to the exact view I began my rendering on. I began by rendering a BPR render with all the armor filled with the mah_modeling_01 matcap and the bear with my modified sketchshaded2 material with no shadows or AO (I prefer to have them on a separate pass so I can have more control over the intensity and color) (**Fig.11**).

I rendered the whole model with flat color and with Diffuse on, which I multiplied later over the BPR render. Because I needed very precise masking for the different elements for my

compositing I did some render passes that I used later on for selections (**Fig.12**).

Using a flat color material and with inactive subtool dimming put down to 0.1, I rendered all the masks for the armor, all the straps, the bear itself and the snow base. I created three new lights in ZBrush: two rim lights and one fill light, which I rendered on a basic material filled with a black color with a slightly modified specular intensity and curve.

From this point on in Photoshop everything was just about experimenting with blending modes and adjustment layers, using the masks created earlier to have greater control over the different passes. At the end I added some photo effects like vignetting, noise and chromatic aberration to make the image look a little less CG (**Fig.13**). And that's it. I really hope you found my tutorial useful.

Borislav Kechashki

For more from this artist visit:

http://galero.cghub.com/

Or contact him at: b.kechashki@gmail.com

SAY HELLO TO OUR
CREATURES & CHARACTERS

and learn animation from award-winning working professionals!

Who says that you have to choose between creature and character animation?

Why not both?

Our thoughts exactly.

Enroll today and become an animator through our:

* 18-month Character Animation Program
* 6-month Animals & Creatures: Master Class

Facebook.com/AnimationMentor

Twitter.com/AnimationMentor
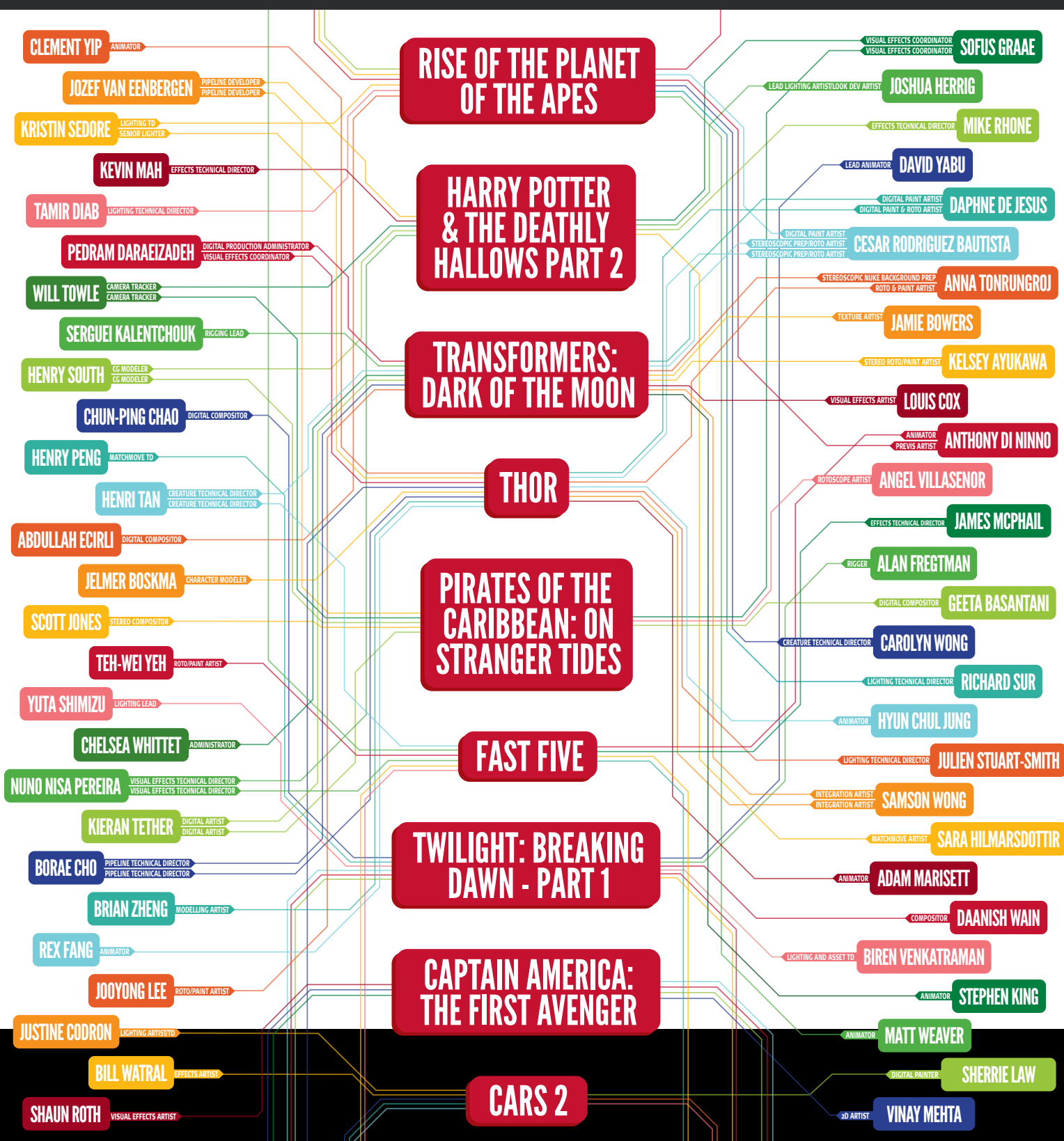
Gplus.to/AnimationMentor

AnimationMentor.com

ANIMATION MENTOR
The Online Animation School

WATCHED A BLOCKBUSTER IN 2011?

9 OF THE 10 HIGHEST-GROSSING MOVIES OF LAST YEAR FEATURED THE WORK OF VFS ANIMATION & VISUAL EFFECTS GRADS.

CLEMENT YIP — ANIMATOR

JOZEF VAN EENBERGEN — PIPELINE DEVELOPER / PIPELINE DEVELOPER

KRISTIN SEDORE — LIGHTING TD / SENIOR LIGHTER

KEVIN MAH — EFFECTS TECHNICAL DIRECTOR

TAMIR DIAB — LIGHTING TECHNICAL DIRECTOR

PEDRAM DARAEIZADEH — DIGITAL PRODUCTION ADMINISTRATOR / VISUAL EFFECTS COORDINATOR

WILL TOWLE — CAMERA TRACKER / CAMERA TRACKER

SERGUEI KALENTCHOUK — RIGGING LEAD

HENRY SOUTH — CG MODELER / CG MODELER

CHUN-PING CHAO — DIGITAL COMPOSITOR

HENRY PENG — MATCHMOVE TD

HENRI TAN — CREATURE TECHNICAL DIRECTOR / CREATURE TECHNICAL DIRECTOR

ABDULLAH ECIRLI — DIGITAL COMPOSITOR

JELMER BOSKMA — CHARACTER MODELER

SCOTT JONES — STEREO COMPOSITOR

TEH-WEI YEH — ROTO/PAINT ARTIST

YUTA SHIMIZU — LIGHTING LEAD

CHELSEA WHITTET — ADMINISTRATOR

NUNO NISA PEREIRA — VISUAL EFFECTS TECHNICAL DIRECTOR / VISUAL EFFECTS TECHNICAL DIRECTOR

KIERAN TETHER — DIGITAL ARTIST / DIGITAL ARTIST

BORAE CHO — PIPELINE TECHNICAL DIRECTOR / PIPELINE TECHNICAL DIRECTOR

BRIAN ZHENG — MODELLING ARTIST

REX FANG — ANIMATOR

JOOYONG LEE — ROTO/PAINT ARTIST

JUSTINE CODRON — LIGHTING ARTIST/TD

BILL WATRAL — EFFECTS ARTIST

SHAUN ROTH — VISUAL EFFECTS ARTIST

RISE OF THE PLANET OF THE APES

HARRY POTTER & THE DEATHLY HALLOWS PART 2

TRANSFORMERS: DARK OF THE MOON

THOR

PIRATES OF THE CARIBBEAN: ON STRANGER TIDES

FAST FIVE

TWILIGHT: BREAKING DAWN - PART 1

CAPTAIN AMERICA: THE FIRST AVENGER

CARS 2

SOFUS GRAAE — VISUAL EFFECTS COORDINATOR / VISUAL EFFECTS COORDINATOR

JOSHUA HERRIG — LEAD LIGHTING ARTIST/LOOK DEV ARTIST

MIKE RHONE — EFFECTS TECHNICAL DIRECTOR

DAVID YABU — LEAD ANIMATOR

DAPHNE DE JESUS — DIGITAL PAINT ARTIST / DIGITAL PAINT & ROTO ARTIST

CESAR RODRIGUEZ BAUTISTA — DIGITAL PAINT ARTIST / STEREOSCOPIC PREP/ROTO ARTIST / STEREOSCOPIC PREP/ROTO ARTIST

ANNA TONRUNGROJ — STEREOSCOPIC NUKE BACKGROUND PREP / ROTO & PAINT ARTIST

JAMIE BOWERS — TEXTURE ARTIST

KELSEY AYUKAWA — STEREO ROTO/PAINT ARTIST

LOUIS COX — VISUAL EFFECTS ARTIST

ANTHONY DI NINNO — ANIMATOR / PREVIS ARTIST

ANGEL VILLASENOR — ROTOSCOPE ARTIST

JAMES MCPHAIL — EFFECTS TECHNICAL DIRECTOR

ALAN FREGTMAN — RIGGER

GEETA BASANTANI — DIGITAL COMPOSITOR

CAROLYN WONG — CREATURE TECHNICAL DIRECTOR

RICHARD SUR — LIGHTING TECHNICAL DIRECTOR

HYUN CHUL JUNG — ANIMATOR

JULIEN STUART-SMITH — LIGHTING TECHNICAL DIRECTOR

SAMSON WONG — INTEGRATION ARTIST / INTEGRATION ARTIST

SARA HILMARSDOTTIR — MATCHMOVE ARTIST

ADAM MARISETT — ANIMATOR

DAANISH WAIN — COMPOSITOR

BIREN VENKATRAMAN — LIGHTING AND ASSET TD

STEPHEN KING — ANIMATOR

MATT WEAVER — ANIMATOR

SHERRIE LAW — DIGITAL PAINTER

VINAY MEHTA — 2D ARTIST

VFS CONNECTS THE ENTERTAINMENT INDUSTRY.

ANIMATION & VISUAL EFFECTS

VFS

LEARN MORE AT **VFS.COM/ANIMATIONVFX**

COMPUTER GRAPHICS STUDENT AWARDS
SCHOOL OF THE YEAR
2010 & 2011
cgCOACH

TOPOLOGY

With all topics and skills there are core subjects that must be considered and understood in order to get the best results. When working in 3D, one of those is topology. In this series of tutorials Diego Maia will be talking us through the creation of his interesting character, whilst explaining the intricacies and importance of this fundamental subject.

CHAPTER 03 – CLEANING UP AND ADJUSTMENTS

Software used: 3ds Max

In the last two chapters we discussed the theory of topology as well as how to retopologize the head, body and accessories. Now it is time to make some final adjustments to make it perfect for the rigging process. Let's start by making the final adjustments on the head (**Fig.01**).

We need to build some geometry inside the mouth to simulate an open throat inside the character's mouth. I usually pull the inside edges of the lips and form a channel that goes down the neck, but this can be done in a number of different ways. Sometimes I like to make it rounded inside the mouth. It's up to you, the rigger or director. I'm also used to extruding the inner edges to the inside of the eyes. In some cases we need the model without holes, so it pays to close the back of the eyes, just like the mouth.

Whenever possible I like making nails separate objects to make the shading easier. This can be done easily if we draw appropriate topology in the retopology process (**Fig.02**).

Now it's time to remove all the triangles and n-gons from our model. I like to use XSI for that because it points out where these are (**Fig.03**).

The same goes for the shoes and feet (**Fig.04**).

Note that some loops make a curve and meet others. This is a great solution, otherwise you would have a very large number of edges going up the arm (**Fig.05**).

Now it's time to re-project the ZBrush details onto your new mesh. This is very easy and fast. Just import our new geometry in exactly the same position as the old geometry, split it with the same number of subdivisions and click the ProjectAll in the Subtool palette (**Fig.06**).
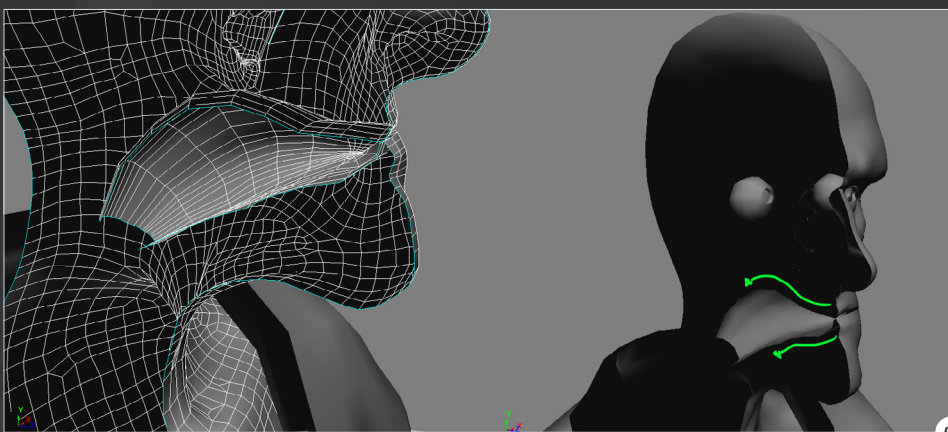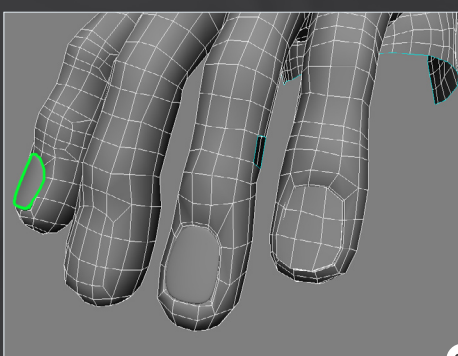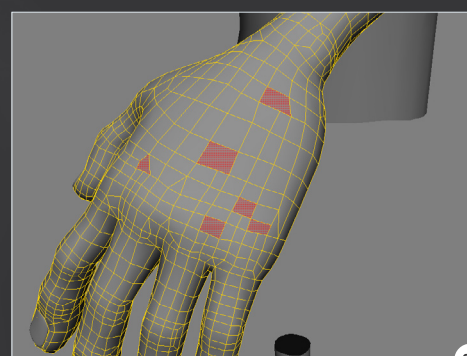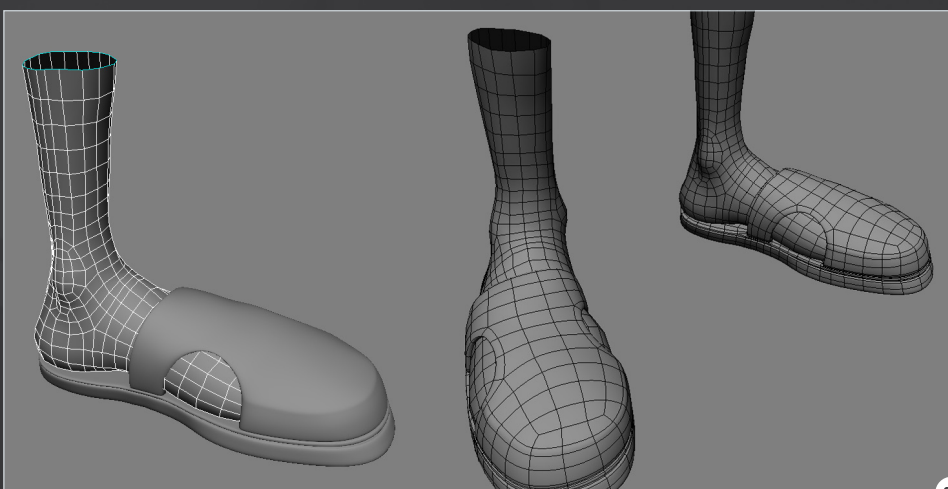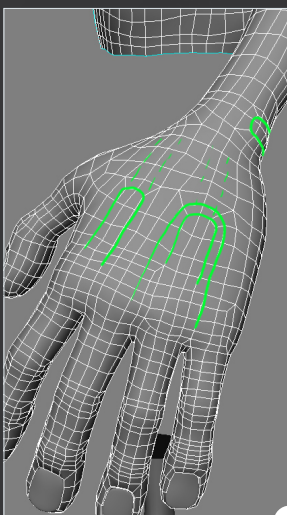
Sometimes this causes some problems at small points, so I usually mask the edges and regions too close to others such as the corner of your mouth, between fingers and extremities. This helps you avoid problems when we're re-projecting (**Fig.07 – 10**).

If you still have problems with this you can also make the projection several times, starting in the lower divisions and so on. Now you can export your geometry in order to make the final adjustments.

For the geometry of the eyes, it is very common to see a model with one single object for the eye ball, but it is also common to use two models to get a more realistic result – one for the iris and another for pupil. For the inner geometry make two extrusions going inside. Use a simulated sphere with the transparency and the volume of the iris, breaking the silhouette a bit. The reflections and shading look much more realistic this way (**Fig.11**). After all the details are set I recommend deleting one side of the model and applying Symmetry, just to make sure that the vertexes did not lose their position.

Now let's take a look at our final model (**Fig.12 – 13**). On the face we have loops around the eyes/mouth and enough at the folds and places that demonstrate expression like the forehead, nose and corners of his eyes.

Behind the head we have enough topology to get skin folds when the character turns his head up. This can be done with blendShapes. Such
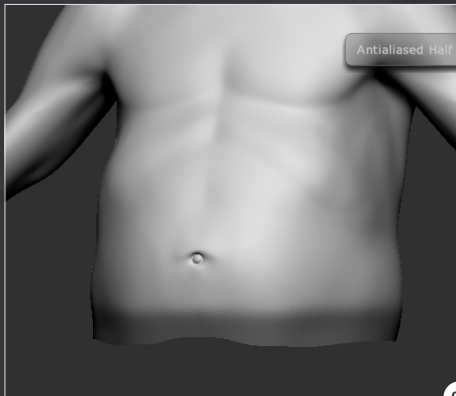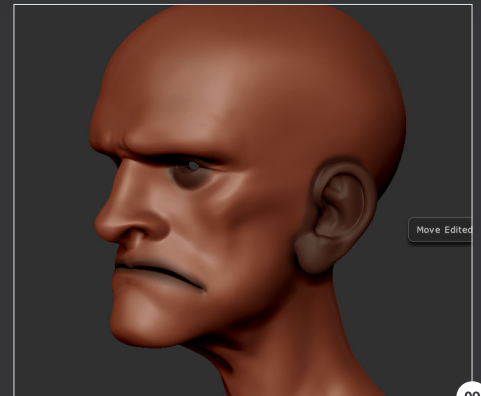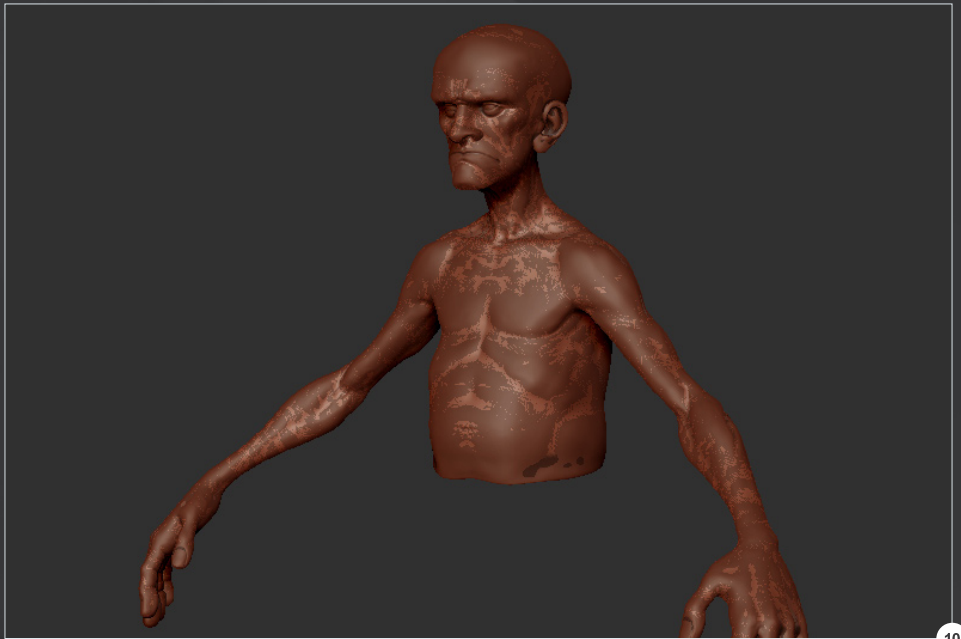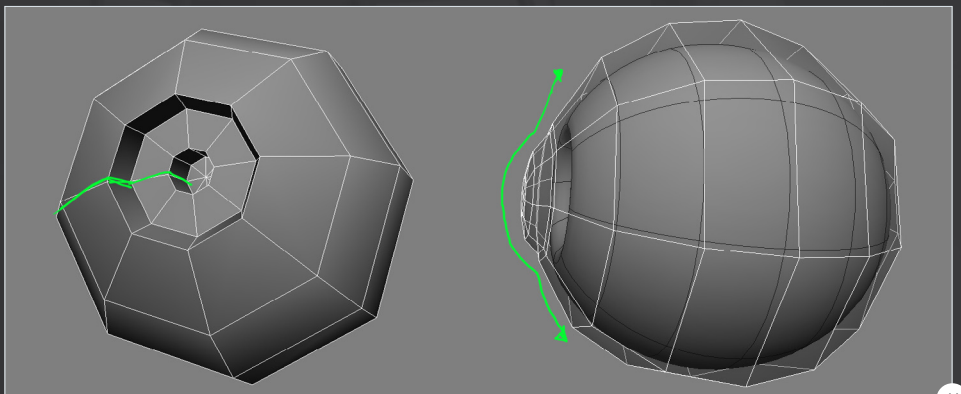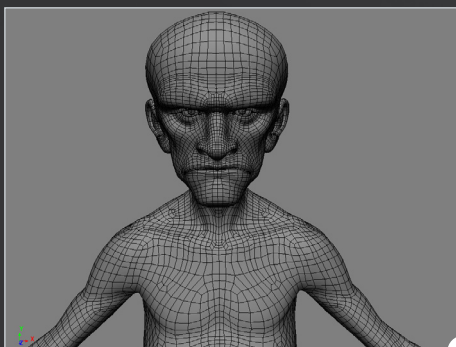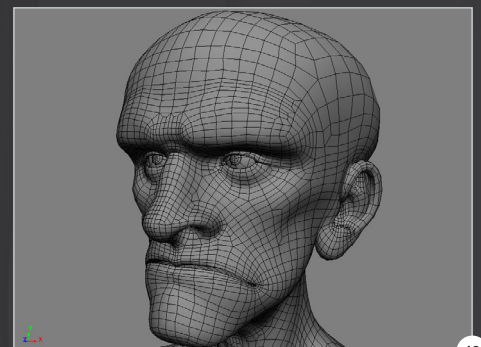
detail can also be worked in several different ways. This will depend on the needs of the model (**Fig.14**).

When you have a character that needs to have its head separated from its body (which usually occurs on the collar of a shirt or under some other accessory) the loop should follow right under the item (**Fig.15 – 18**).

It's extremely important to keep in mind where the UV seams will go. Sometimes as you open the UVs you will realize that you would like to cut the diagonal out of a polygon, but you don't have edge loops for this. It is important that no hole in the mesh is visible from any view.

If you have an overall look at your model you should see regular distribution of polygons. You should also see that the polygons are a similar size.

Fig.19 shows the final render of Miranda. Our third chapter ends here, but there is a point I would like to make before I finish. Try not to use this tutorial as a guide for replicable loops; this can make the process much harder. The best way to perfect this is to understand the theory and practice. You will see that after a few hours the process will become faster and faster. The important thing is to work the topology as a non-linear process. You can delete and change the direction of the loops at any time. With practice you can begin to solve these problems faster and figure out new ways of doing it.

In the next chapter I'll be modeling a rifle and talking about hard-edge topology.
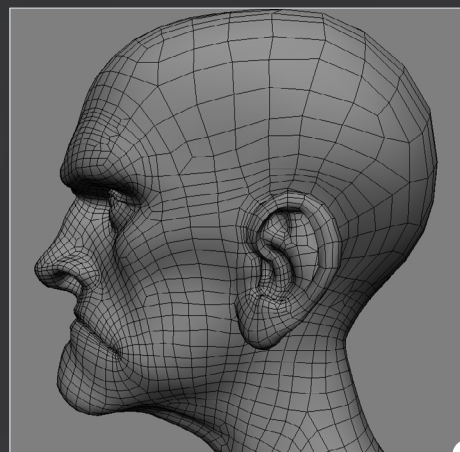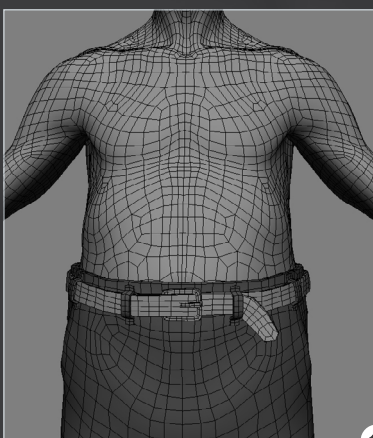
DIEGO MAIA

For more from this artist visit:
http://maia3d.blogspot.com/
Or contact him at:
maia3d@gmail.com
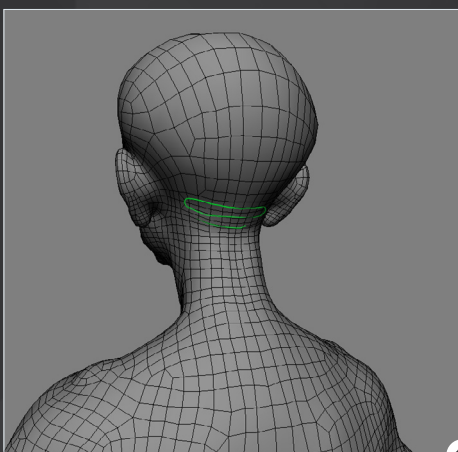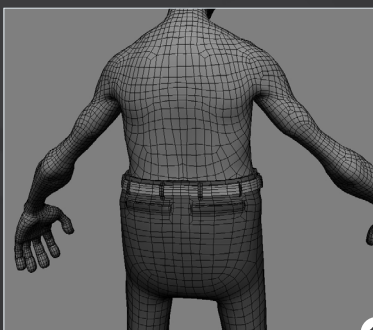
03

MAKING OF
DESERT GAS STATION
BY EUGENIO GARCIA

Inspired by old B movies, Eugenio Garcia has created this stunning image of a gas station in the middle of nowhere with stunning results. In this tutorial he covers the whole process of its creation, from modeling through to texturing, lighting and post-production.

DESERT GAS STATION

**Software used:** LightWave 10, ZBrush & Photoshop CS4

INTRODUCTION

Hi, my name is Eugenio Garcia Villarreal and I'm a graphic designer. I started to learn 3D in 2004, mainly from tutorials from websites like www.3dtotal.com. I now have a small studio in Mexico called d10studio.

This image was inspired by old B movies and the gas stations that you often see in them.

My main inspiration, however, was a 3D image created by Mauro Scardinni, but I decided to take his idea further and created a more complex environment around my gas station. The image was created to be the backdrop for a photo of a girl that I had taken in a photo session.

MODELING

The modeling was done in LightWave 10, which is a really nice piece of software. I like the way you model in LightWave as it has a really clean work area to play and work in. The modeling
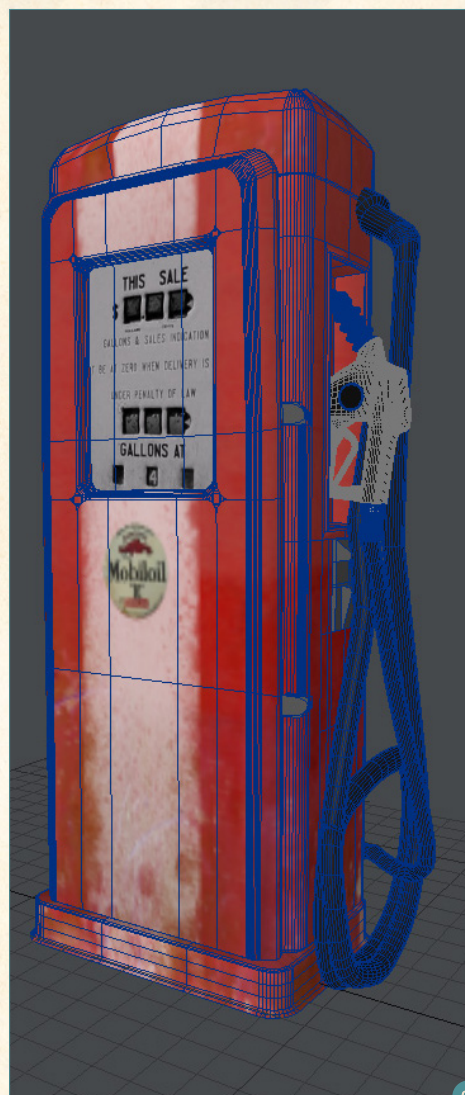
for this image was really simple. It was just box modeling for almost everything. I think that this is the best way to model.

For the gas pump I used reference photos and created it using box modeling. I spent quite a bit of time playing with the edges to make sure the surface of the pump was smooth (**Fig.01**).

The building was very simple box modeling again, as you can see in **Fig.02**. I cut out some windows using the Knife tool to make sure the building looked interesting. I used the Multiply tab tools like Multi-shift, Bevel, Knife and Band Saw Pro as they are really handy when doing this sort of modeling.

The skull is the only object in the scene that I created using ZBrush (**Fig.03**).
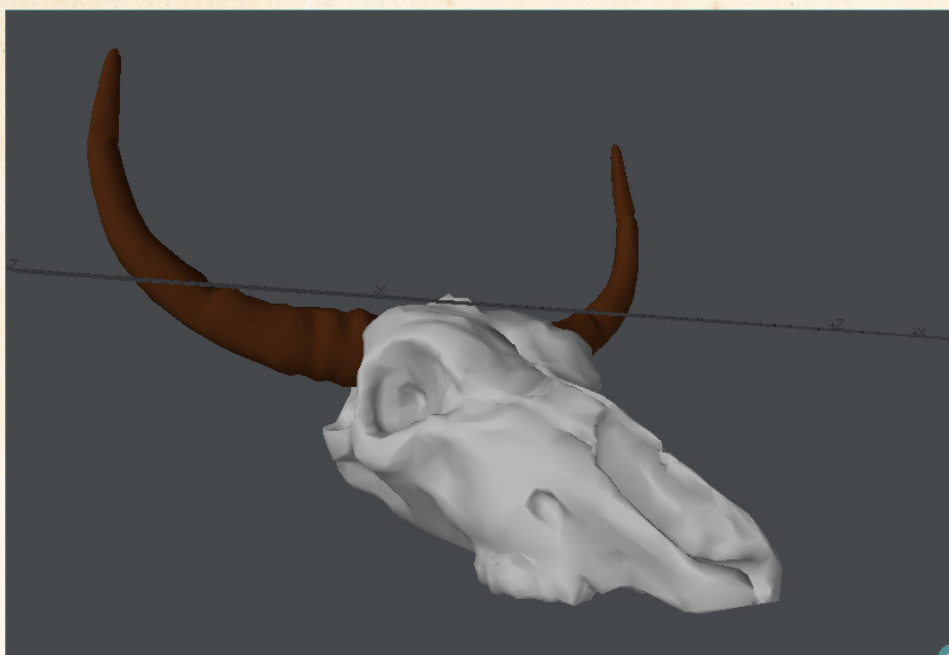
Most of the objects in the scene were quite simple models (**Fig.04 – 05**).

The workflow was really very simple. I basically searched for references and then modeled and arranged them in the layout until I felt like I was happy with the composition.

When it comes to all of the tools available I suggest using all of them. Don't be afraid to try the different tools out; this is the only way to learn about LightWave's extended tool set. This sometimes takes a bit of patience, but it is the best way to learn.

TEXTURING AND RENDERING

At this point all of the pieces were in place so I went on to cgtextures.com to find good textures for soil, wood and the bulk of the gas station. I also found some rusted metal sheets and the vintage logos from internet searches. I used Photoshop to merge several textures and created some UV maps. I then aged all my textures by using tools like Burn and Color Dodge (**Fig.06**).

I used basic shaders that are nothing special. They were just preset materials that I tweaked a little bit (**Fig.07**).

I created a Displacement map for the ground to make sure there were some nice bumps that looked realistic. Another thing that I did to make the ground look more realistic was to add particles like stone and gravel. I used the Spray Point tool in Modeler mode and the Point Clone tool to create a nice random effect on the ground.

The lighting setup was simple. There was an area light to create soft shadows, which had an orange color applied to it to give a sunset feeling. The scene was then rendered with Monte Carlo Radiosity in FPrime. The second light under the shelter is a point light.

04
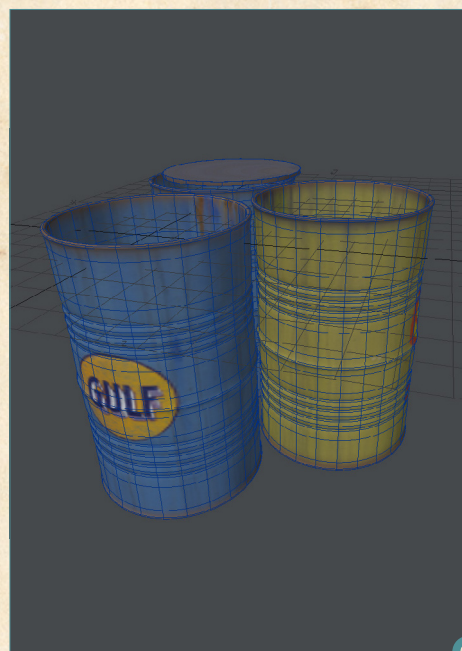
05

06

07

I often add a background environment image to help me get the colors right. It's a simple but powerful way to make sure everything looks correct (**Fig.08**).

Post-production

After the render was complete I moved everything into Photoshop CS4 and the first thing I did was some color corrections. I then played with the levels and used some photo filters to get the mood I wanted. I usually use a 55mm plug-in and Color Efex Pro. All my work is done with a Wacom Intous 4 (**Fig.09**).
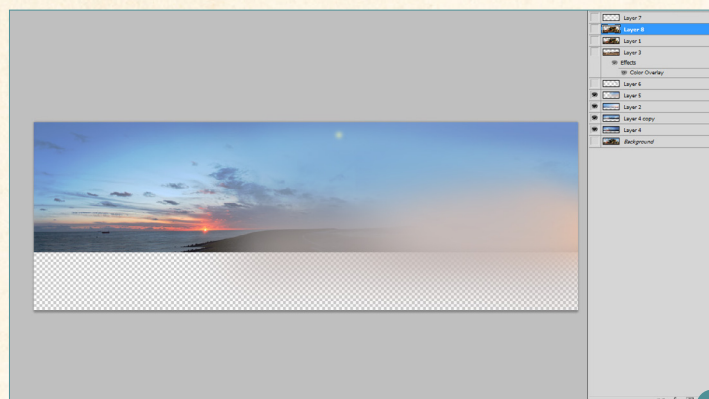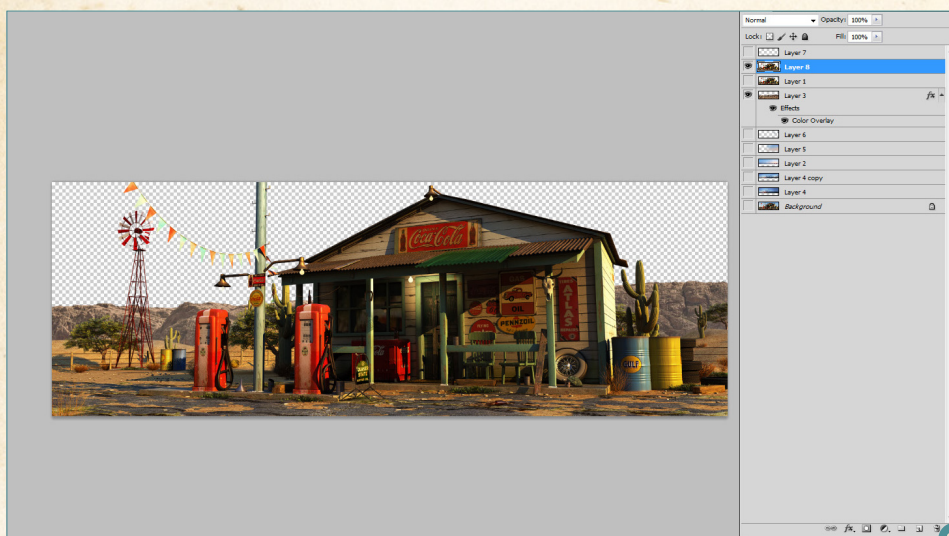
I searched for a good mountain image on cgtextures.com for my background. I tried to find an image with similar lighting as the lighting I set up in my scene. I then added the sky. For still images I like to use photo backgrounds to give the image a nice finish. When creating 3D stills you need to remember that you don't need to model everything. It would be inefficient to model all of the distant background for a still (**Fig.10 – 11**).

After this I did some adjustments with the Burn and Dodge tool to add some dark and bright values. When I was happy with the results I merged all of the layers, but the image was not yet finished. I continued to add to the image without having to worry about all of the layers I just merged. I added some spot lights and glows in the brighter areas with a round brush and used my Sharpen brush to add some nice textures.

After eight hours of post work I was happy and you can see my final image in **Fig.12**.

It took about three days to finish the project. It was a nice experience, and a challenge to get crisp details. If you want to know anything about my technique or just want to say hello, write me an email. Thanks for reading.

Eugenio Garcia

For more from this artist visit:

http://artecnl.cgsociety.org/gallery/

Or contact him at:

artecnl@gmail.com

3DTotal presents the new issue of **2DARTIST** magazine: a downloadable monthly magazine for concept art, digital & matte painting for only **£2.75** (approx $3.78 - €2.93)

3dtotal.com

Cover Image By Blaz Porenta

2d artist

Concept Art, Digital & Matte Painting Magazine
Issue 073 January 2012

RED RIDING HOOD

Interview
Tuomas Korpi

Articles
Sketchbook of Julian Totino

The Gallery
Oleg Leshiy Shekhovtsov, Serge Birault, plus more!

In the latest of our Illustrating Fairytales series, Blaz Porenta gives us his monstrous take on this fairytale classic.

Painting Creatures From Mythology
Matt Dixon and **Simon Dominic Brewer** go head to head in this brand new series, as they both tackle the mythical Charybdis using Photoshop and Painter respectively.

Futuristic Vehicles
Carlos Cabrera shows us how to create a futuristic submarine from scratch in the latest part of this series.

Creating New Worlds
In the penultimate part of their comprehensive guide, **David Smit** and **Nadia Karroue** show us how to go from concept to story when designing your own world.

visit **WWW.2DARTISTMAG.COM** to preview the latest issue, subscription offers and to purchase back issues.
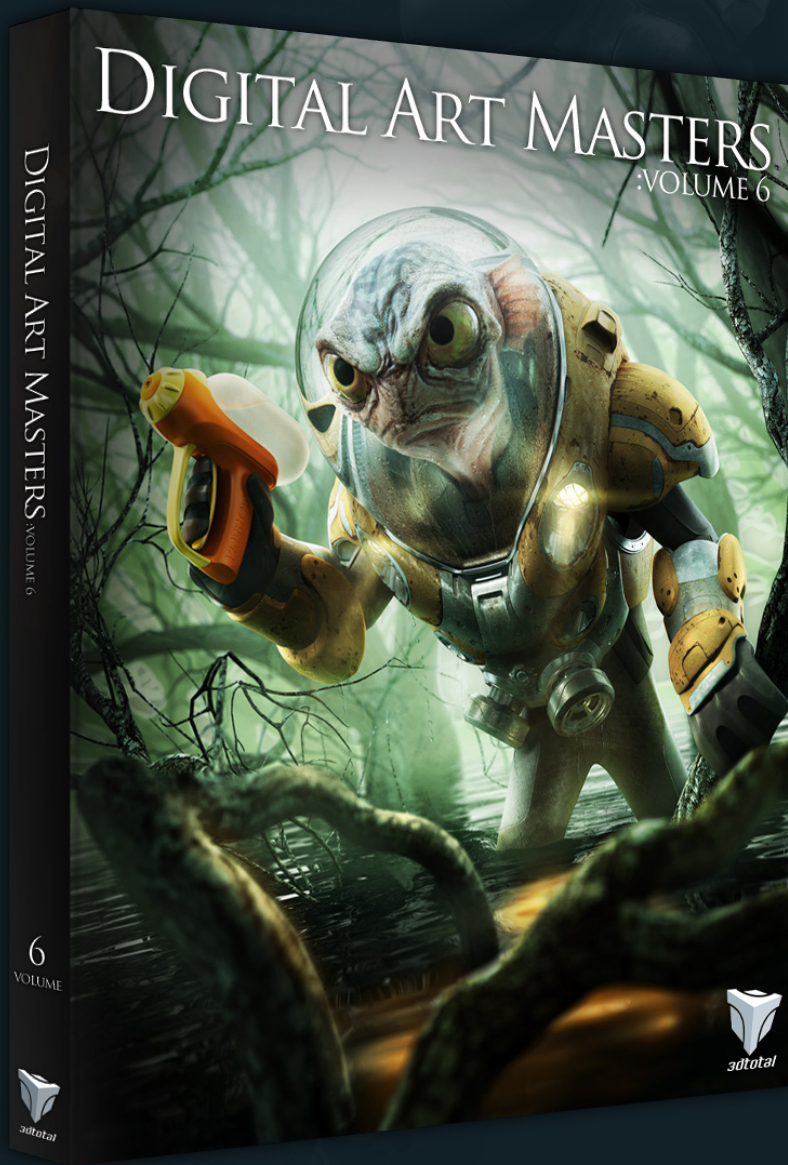
Digital Art Masters

Volume 6

With the release of 3DTotal's new book, *Digital Art Masters: Volume 6*, we have some exclusive chapters for you...

This is more than just an artwork book. Not only does it feature full-color, full-page images, but each artist has given a detailed description, in their own words, of the creation process behind each piece of published artwork. And they've done it especially for this book!

This month we feature:

"Mecha Girl"

by Rafael Grassetti

The following shots of the "Mecha Girl" book pages are featured here in full-resolution and can be read by zooming in...

© Rafael Grassett – based on a concept art by Marc Brunet

MECHA GIRL
BY RAFAEL GRASSETTI
JOB TITLE: Character Artist
SOFTWARE USED: ZBrush, 3ds Max, Photoshop

INTRODUCTION
I've been working in the games industry for a few years and so decided to create a solid piece for my portfolio. I usually do a few sketches and try to create something from scratch, but this time I was looking for a solid design before creating my interpretation of it because that is what I usually do in my day job. I'm a fan of Marc Brunet's art so I decided to create a low poly model based on one of his concepts.

THE MODEL
The design was really solid, but there were a few things I wanted to change. I started by making a simple 3D sketch in ZBrush to find out what was working and what could be changed. Those familiar with ZBrush will know that it is really easy to work with simple geometry and forms, and it is a really good way of designing things directly in 3D, like any digital sculpting tool. So I started creating a few boxes in 3ds Max and, using ZBrush, came up with a good design for the final piece (Fig.01).

After that I used the SubTool master to merge all the objects into one mesh in ZBrush and started to create a geometry guide using Retopology. During this time I didn't worry too much about final loops and finishing the geometry with Retopology, as this new geometry was going to be modified in 3ds
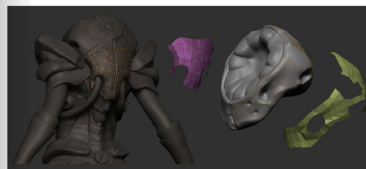
> I WAS TRYING TO REPLICATE THE FEELING OF THE ORIGINAL ARTWORK, BUT AT THE SAME TIME WANTED SOMETHING MORE CHARISMATIC

Max to refine and finish the model with correct loops. I did this to have more control over both the organic and inorganic parts (Fig.02).
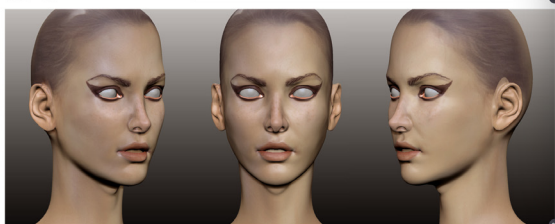
TITLE OF SECTION   125

This first part was really fast, and in one day's free time I had a good starting base. After a few days I came up with the high res model in 3ds Max ready to use as a cinematic model, or in this case to create the low poly version in preparation for baking (Fig.03 – 04).

For the face and accessories I created the base in 3ds Max and finished it in ZBrush, as I didn't want to do the first pass in ZBrush and then go back into Max. I believe the face was the most difficult aspect and demanded a few tests before finding the final shape. I was trying to replicate the feeling of the original artwork, but at the same time wanted something more charismatic. Again, ZBrush really helped achieve the result I wanted during these tests (Fig.05 – 06).
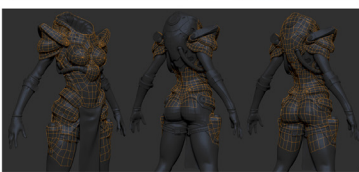
I merged everything and, in ZBrush, started to do the retopology for the low poly model. At this stage I was not worried about finishing everything in ZBrush, but rather just wanted to create some solid geometry to finish later in 3ds Max. I usually start the retopology from the main loops like the articulations, shoulder and rib loops and then weld everything. I find this is the best way to gain the most control over the final product, as the ZBrush Retopology tool doesn't have many features (Fig.07 – 08).

I then finished everything in 3ds Max with the final low poly model being a little over ten thousand triangles, which is a good number to settle on. After finishing the textures I could tidy it up a little more without losing any detail.
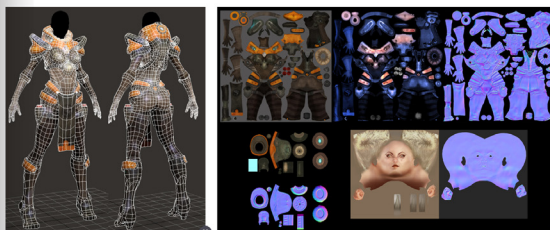
Following on I moved to the UVs, unwrapping them in Max. When working on a low poly model you have to pay attention to the UVs and the number of objects in the final model. A good approach is to generate one just for the head, one for body and one for parts that could be changed in the game, such as the accessories. In this case I split the model into "Body", "Accessories" and "Face/Hair".
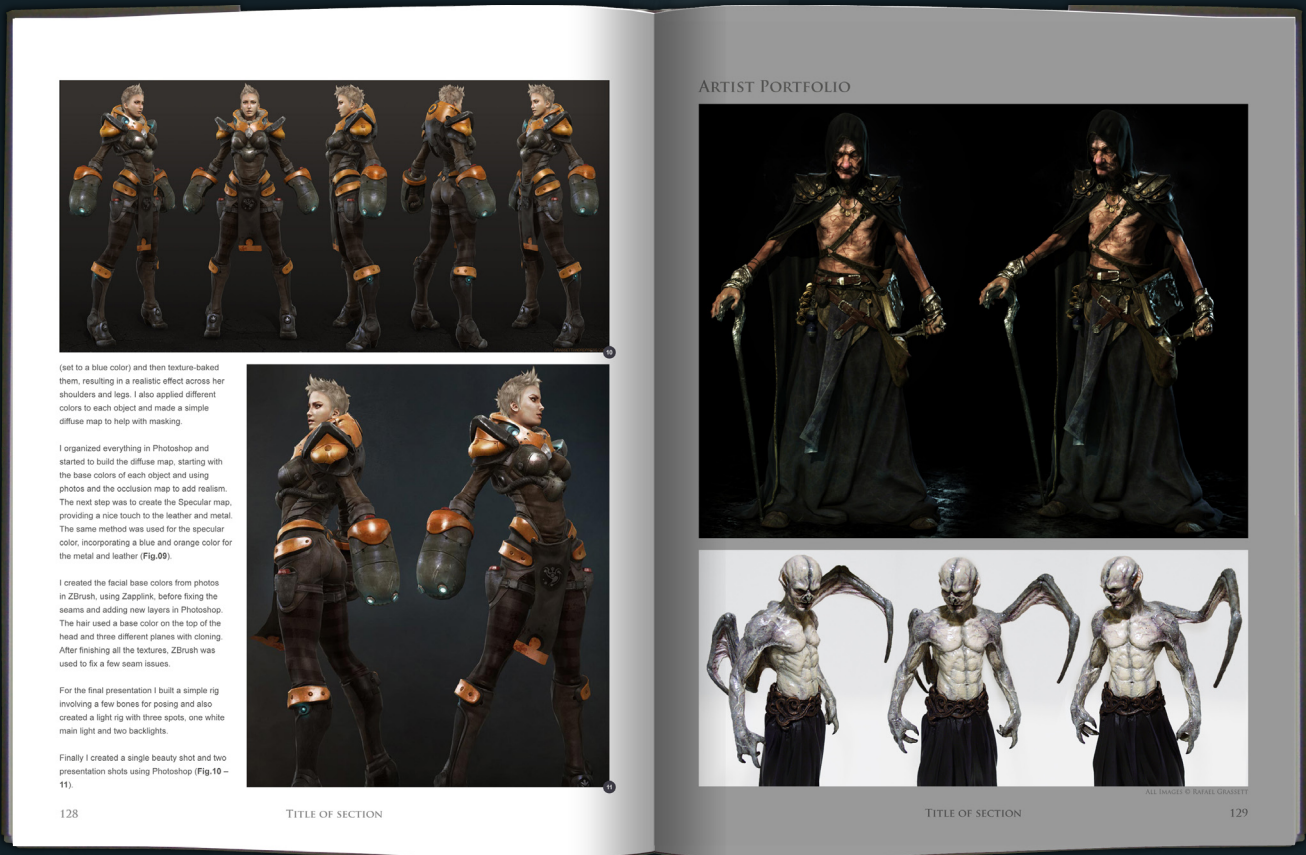
Having done this I baked the high res model into the new low poly geometry using the Render to Texture function in 3ds Max. When working with numerous objects, the projection may have a few overlapping problems so I usually split the model into a few parts and then assemble them in Photoshop. It didn't happen in this case, but it does help when working with a heavy high poly mesh.

For this model I generated the following maps: Normal, Occlusion, Light and Color. The Normal map is the map containing the details, the Occlusion map represents the shadows cast by each object, with the Light map giving the impression that there are lights present without using a specific source in the scene. To achieve this I created a few Omni lights

126   TITLE OF SECTION

TITLE OF SECTION   127

The following shots of the "Mecha Girl" book pages are featured here in full-resolution and can be read by zooming in...

Artist Portfolio

(set to a blue color) and then texture-baked them, resulting in a realistic effect across her shoulders and legs. I also applied different colors to each object and made a simple diffuse map to help with masking.

I organized everything in Photoshop and started to build the diffuse map, starting with the base colors of each object and using photos and the occlusion map to add realism. The next step was to create the Specular map, providing a nice touch to the leather and metal. The same method was used for the specular color, incorporating a blue and orange color for the metal and leather (Fig.09).

I created the facial base colors from photos in ZBrush, using Zapplink, before fixing the seams and adding new layers in Photoshop. The hair used a base color on the top of the head and three different planes with cloning. After finishing all the textures, ZBrush was used to fix a few seam issues.

For the final presentation I built a simple rig involving a few bones for posing and also created a light rig with three spots, one white main light and two backlights.

Finally I created a single beauty shot and two presentation shots using Photoshop (Fig.10 – 11).

128   Title of section

Title of section   129

ALL IMAGES © RAFAEL GRASSETTI

3DTOTAL BOOKS
SAVE UP TO 20%
FOR BUNDLE BUYS

2 BOOKS - 10%

3 BOOKS- 15%

4+ BOOKS - 20%

3DC next month

Here is what's in next months issue of 3dcreative

Tutorials

Interviews

Galleries

Making of's

Subscribe

SUBSCRIBE NOW & SAVE UP TO 25%
on this already amazing value publication!

12 ISSUES FOR THE PRICE OF 9
£24.75 save £8.25 (approx - $35.91 save $11.97)

6 ISSUES FOR THE PRICE OF 5
£13.75 save £2.75 (approx - $19.95 save $3.99)

visit www.3dcreativemag.com for full information

Image by Jose Alves da Silva

SWORD MASTER 2

3ds max

CHAPTER 5 – TEXTURING

In 2006 3DTotal created some groundbreaking training that quickly made a name for itself as one of the best 3D training resources available; that series was called the Swordmaster! Well five years later the Swordmaster is back and better than ever. In this series industry professional Gavin Goulden will be talking you through how to take a concept and turn it into a top quality character ready for use in a game. From basic modeling through to sculpting and texturing, Gavin will cover every step in great detail so that even an inexperienced 3D artist will be able to comfortably follow this series.
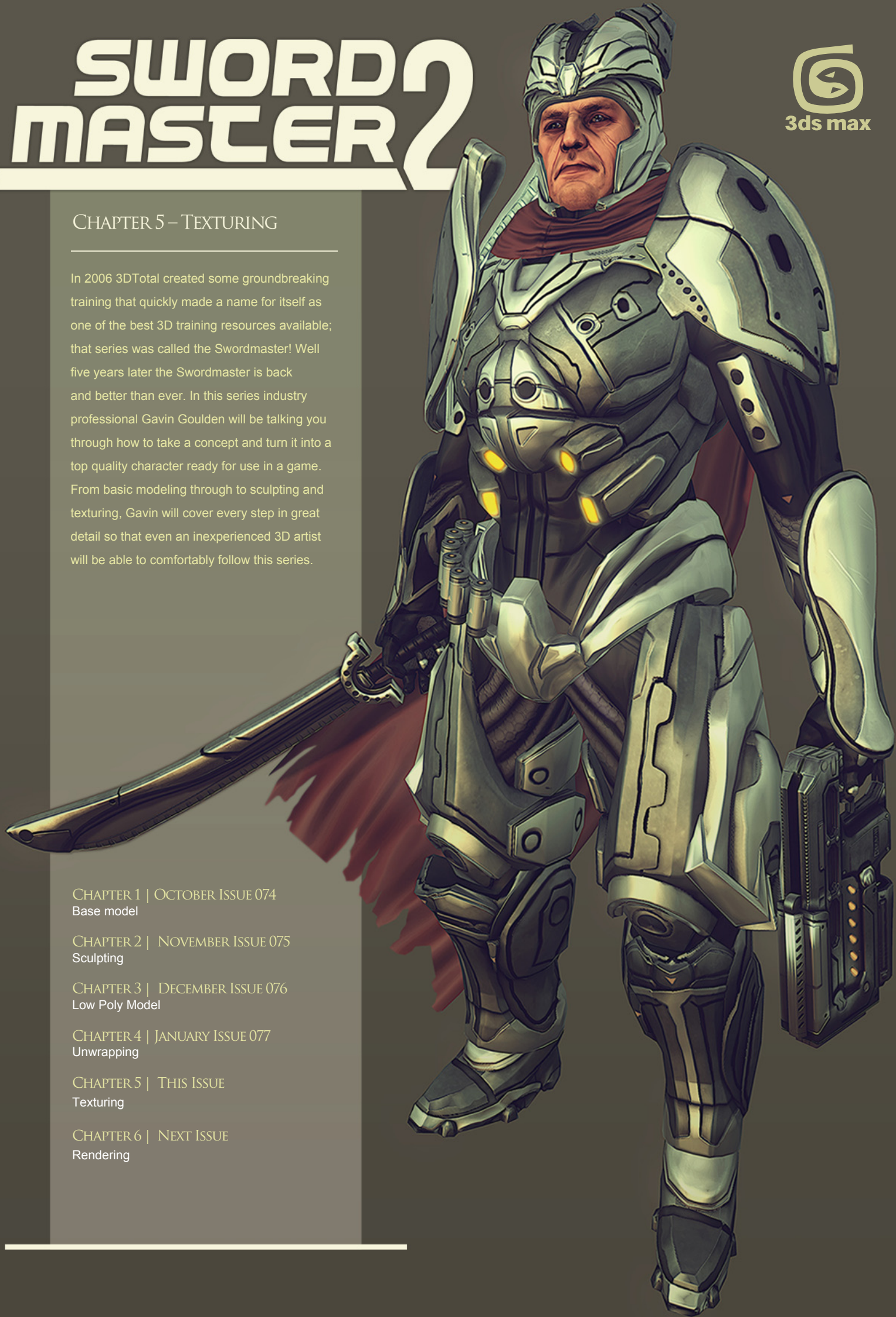
CHAPTER 5 – TEXTURING

Software used: 3ds Max

INTRODUCTION

In this chapter we will be covering the creation of texture maps commonly used in today's video games. From the baking of Normal and Ambient Occlusion maps to hand-painting diffuse textures and FX, a good texture can really make or break a game model. Too much detail can become distracting, too much baked-in lighting can nullify the benefits of Normal maps and too little contrast or too few points of interest can leave a model looking bland.

First off, begin analyzing which portions you can group together for your texture baking. For the most part you want to avoid one chunk influencing another chunk. For example, the upper and lower leg will be baked separately since you do not want information on the high resolution version of the upper leg to be baked into and visible on the low resolution of the lower leg. The same example can be applied to the shoulder pads. Having information from the shoulder pads baked into the texture of the chest would lead to rendering errors.

It is also common practice to create an "exploded" version of your high resolution and low resolution models to avoid the same issues. Both methods work fine, although I personally find it easier to just create multiple bakes and compile them in Photoshop (**Fig.01**).

For texture baking, I like to use xNormal. XNormal is a free application created by Santiago Orgaz (http://www.xnormal.net/1.aspx) that is made specifically for baking maps of all types, or at least any type of map commonly used in the industry. Since there is no viewport, loading high resolution models into the program will practically not affect your machine and, since those rendering resources are not being used, your baking times will be reduced significantly.
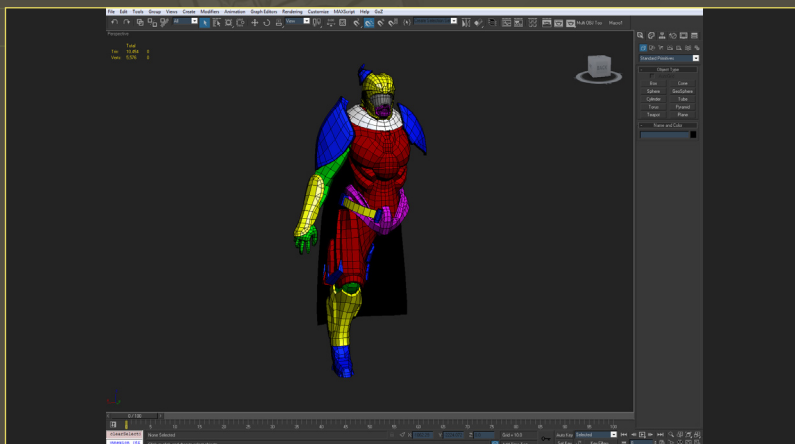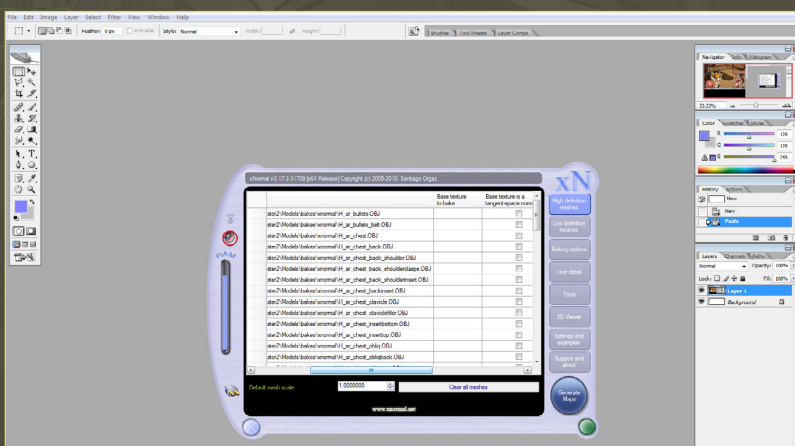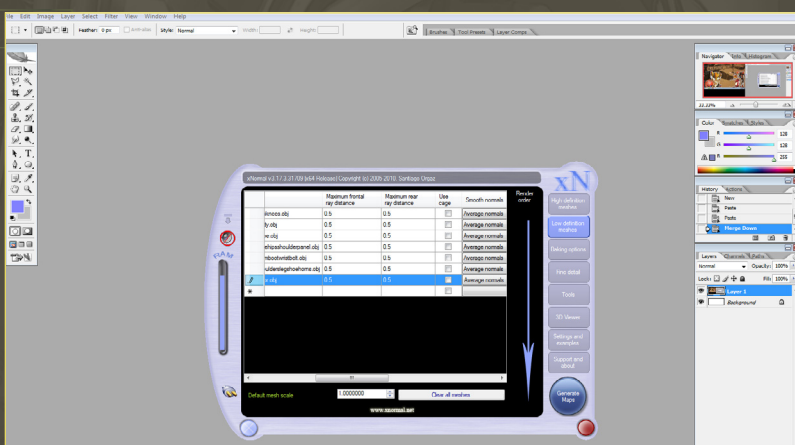
Fig 01

Fig 02

Fig 03

Fig 04

After you install xNormal open it up and navigate to the High Definition Meshes tab. This is where you will specify the high resolution target meshes that you have exported from ZBrush. To add meshes to the list, simply right-click over the cells and click Add Meshes. Generally, I add all of my meshes and use the checkbox to toggle their visibility. If it is easier for you, you can also add and remove meshes as needed instead (**Fig.02**).

Next, load in the low resolution model that was exported from Max. Much like before, navigate to the Low Definition Meshes tab, right-click over the cell and add the meshes that you would like to use. I often set the mesh normals to Average Normals for each model, which is essentially the same as having just one smoothing group on your entire model.

When it comes to baking, xNormal is essentially using a uniform ray cast rather than a cage (though a projection cage can be created and used, if needed, in an external program like Max using the SBM plug-in provided with xNormal). This means that whatever value you enter for the ray cast limits, xNormal will search at that distance for information and bake it into the maps you have specified.

For each chunk that you export you will more or less bake out a set of maps (usually just Normal and Ambient Occlusion.) Manage this through the checkboxes on the left and by toggling visibility on for related models. Once all of the maps are complete, compile them in Photoshop with the final result being one map of each type (**Fig.03**).

If you navigate to the Baking Options tab you will be able to specify where the maps will be saved to, as well as the dimensions of the Texture map. I tend to bake maps larger than needed in case the model will need to be used in a high resolution like cinematics or print. In this case, I'm baking a square 2048 map, which is fairly standard.
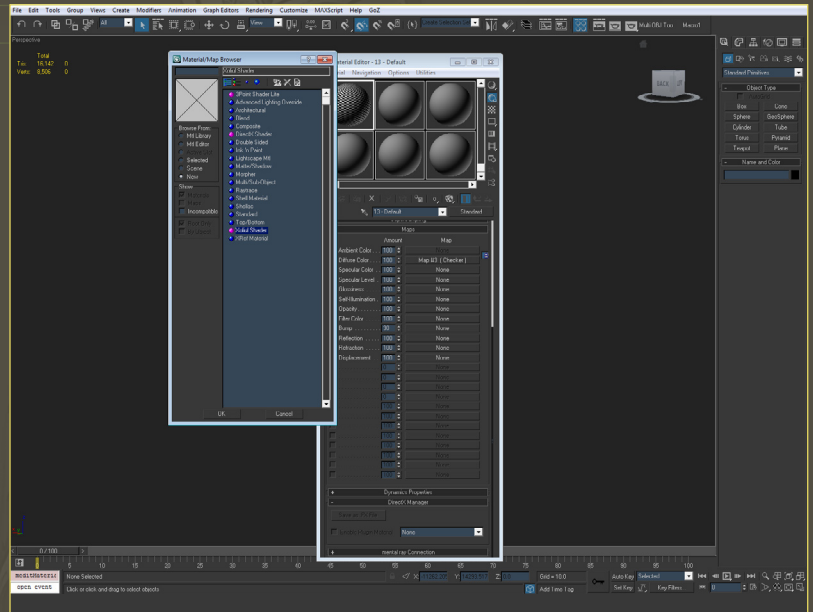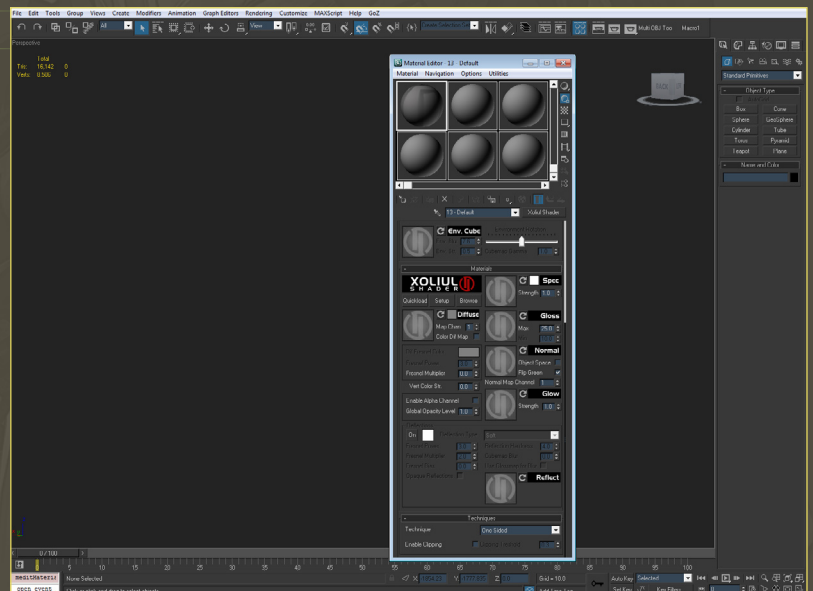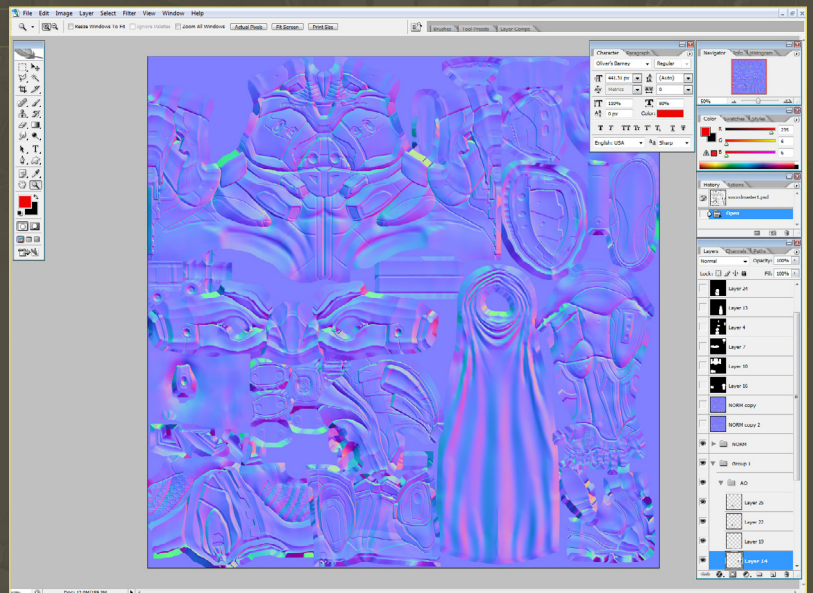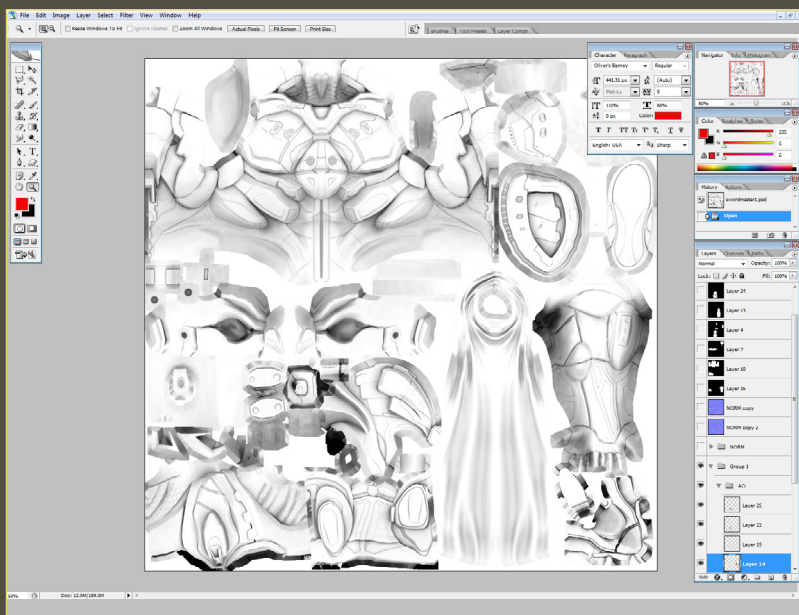
Fig 05

Fig 06

Fig 07

Fig 08

Fig 09

Fig 10

Here you can also flag which types of map you would like to create as well as the Antialising quality (which significantly increases rendering times) and edge padding. Edge padding is used to help textures mix properly and avoid texture seams when doing so, which is also why it is wise to leave some space between your UV islands. When everything is set to your liking, click Generate Maps. Once the preview finishes, your map is baked and ready to be used (**Fig.04**).

To view textures on my models, I use the Xoliulshader 2.0. The Xoliul shader is a free, realtime shader created by Laurens Corjin and Robbert-Jan Brems (http://xoliulshader.com/).
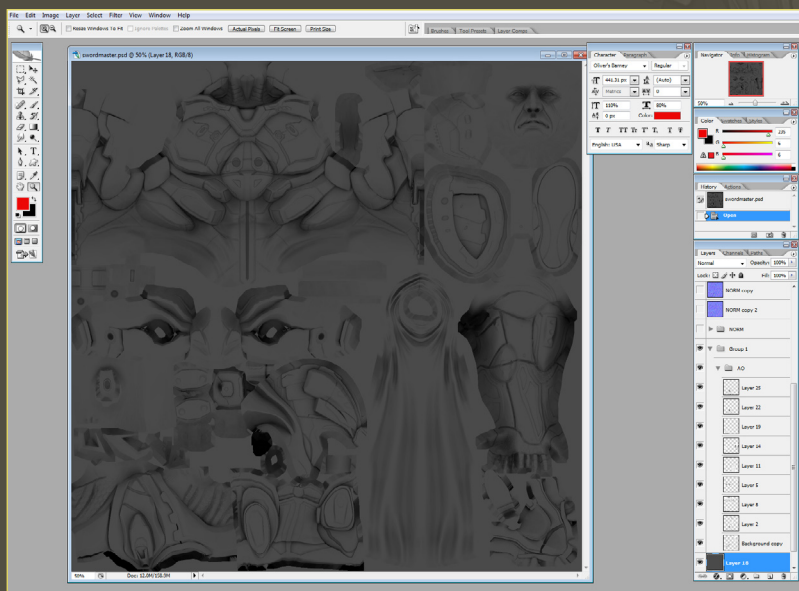
After installing the shader, navigate to the Material Editor in Max and change the material type from Standard to Xoliul Shader (**Fig.05**).

Once the shader initializes, a custom user interface will appear in the Material Editor, which will provide you with a healthy suite of options including texture types, atmospherics and rendering technique. Apply this material to your model and simply click on the appropriate texture type to navigate to your textures and then load them into the scene (**Fig.06**).

After compiling the different Normal maps together that have been baked using xNormal, use the alpha channel of each image as a mask to assist with preventing overlaps as some elements may bleed over on to another one, which will cause rendering problems. If trouble areas are spotted, like inaccurate bakes, you can either hand alter it in Photoshop using the Smudge tools or Standard brush, or simply create a new bake that is more tailored to that specific area (**Fig.07**).

Using the same method as the Normal map creation, gather all of the ambient occlusion textures together into one image. The ambient occlusion will initially be used as a guide for where to paint different materials. In the final

product, the ambient occlusion texture will be used very subtly to help ground certain elements (**Fig.08**).

Once you are happy with how the Ambient Occlusion map looks, set its blending mode to Multiply and drop a neutral color underneath it. In this case, I have a layer of dark gray, which will more or less act as the base color for the Swordmaster character.

My approach for texturing is to work on all the areas at the same time so that the entire character progresses evenly. It can be distracting and, in some cases, problematic to only focus on small areas at a time as it can become hard to see the big picture. On personal work I find that I can actually lose steam as well if I spend too much time on one area and do not see enough progress overall (**Fig.09**).

If the renderer supports it, I like to use PSDs as my texture format as it saves time and confusion from saving from a PSD (which you are most likely using as a source file) to a flat image format like TGA or PNG. I also like to use a naming convention that has a shortened version of the map type as a suffix. For example, "swordmaster_DIFF" and "swordmaster_NORM."

To start off just focus on the diffuse texture and Normal map information, though it is a good idea to work on your Specular and/or Gloss maps at the same time before too much information gets baked into the diffuse texture that wouldn't necessarily change specular values. Once the maps are saved out, load them into the viewport shader to see the final result in 3D. If you spot any errors manually touch them up or re-bake the information (**Fig.10**).

Next, begin defining the different material types by lasso selecting the area or by painting with a hard brush at full opacity. At this stage, just focus on the bigger material changes, which are namely metal, rubber, flesh and fabric.
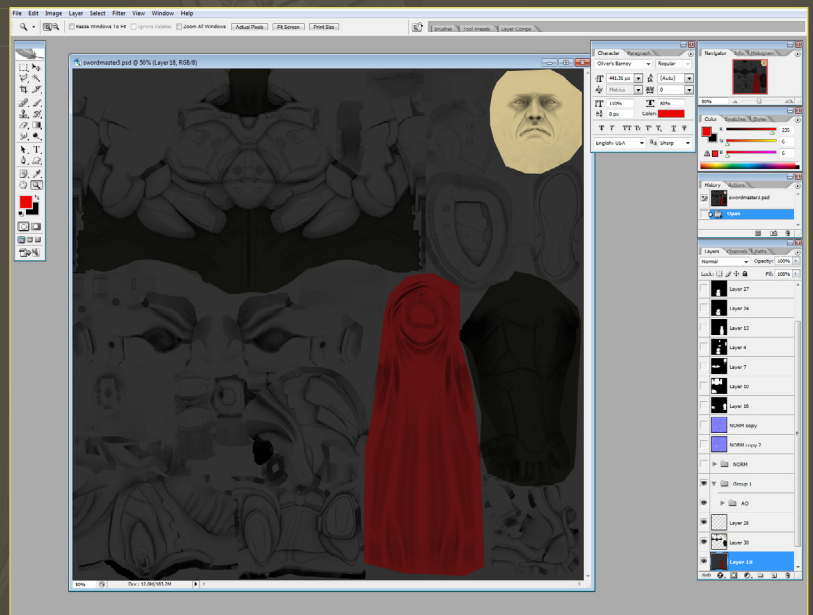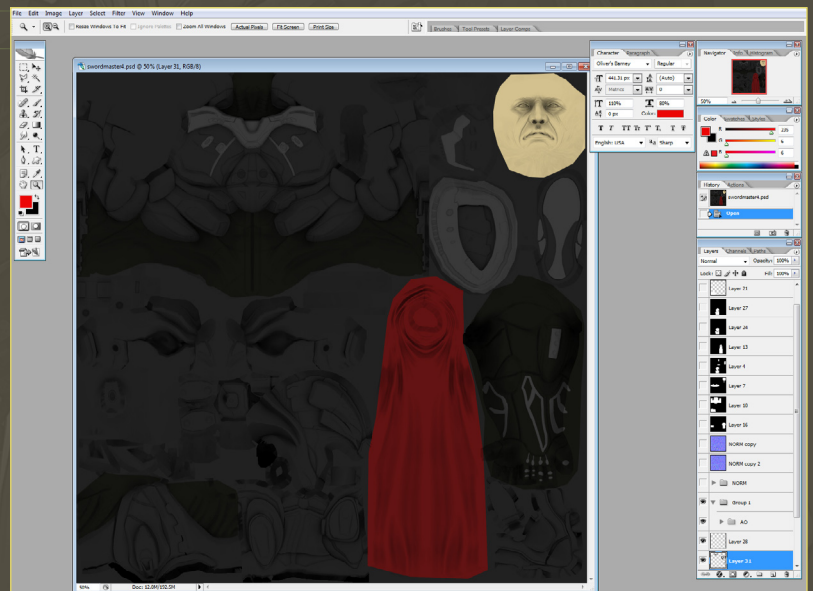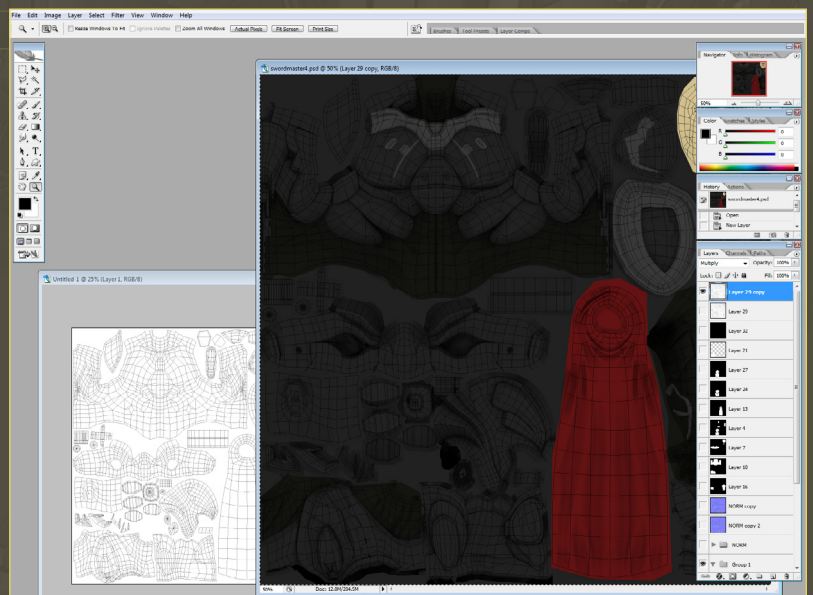

Fig 11

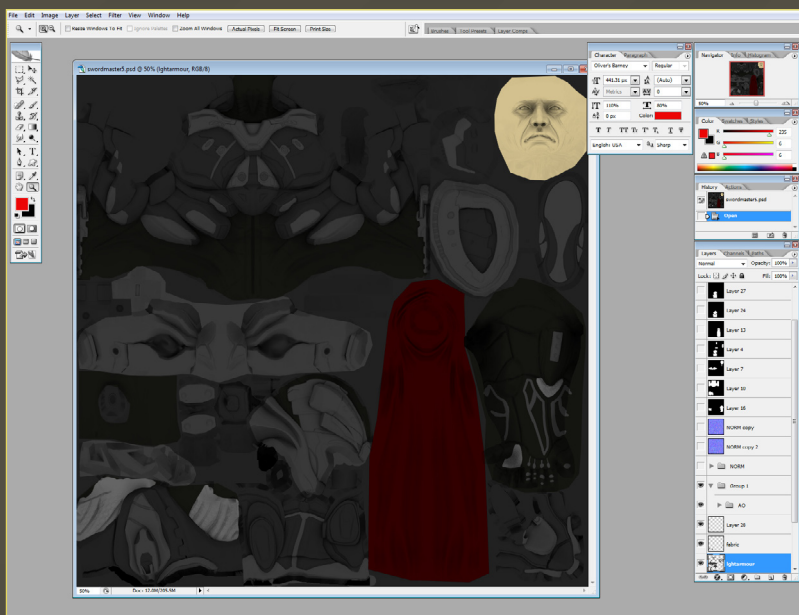Fig 12

Fig 13

Fig 14

Fig 15

Fig 16

For the most part the materials on this character are pretty clean and simple. Most of the work in the diffuse texture will be breaking and popping armor plates off in interesting ways, such as outlining in black and slight color changes. In this case any noise in the texture should be handled in the Specular map as the surface material itself is clean/not destroyed, rusted and fairly streamlined. The Specular map will hold all of the imperfections in the surface that will be visible in different lighting conditions (**Fig.11**).

Moving forward, start to define the smaller differences in material types within the metal plating. This really helps pop out plates from the surrounding area and, in this case, really helps add some points of interest. A good example of this is the metallic detailing along the arm's under armor and the lighter metal against the darker surface of the chest (**Fig.12**).

Render out a rough UV map, invert it and set it to Multiply over the top of your texture. This just helps define the boundaries of each element, where you shouldn't paint and where the different regions are that you may have missed in the initial color blocking stage (**Fig.13**).

Next, distinguish the different material types within the armor. Once you get to this stage you can start to add some finer details such as painting in the knuckle plates and details on the boots. Keep these different material types on separate layers within your texture for easy selections as well as making life easier in the future when you create your Specular map. For the most part, each material will have a different spec value, so not having them flattened into one layer will make it much easier to adjust (**Fig.14**).

Next, begin painting crisp black lines on the seams of the armor and under armor to help define each element. This detail will also be carried over to the Specular map to assist with the same goal by breaking specular highlights in between plates. Also begin to fill in the holes

with black to imply more depth in the model (**Fig.15**).

It is always a good idea to check your work regularly when working on a texture. Not only does it help you spot mistakes, I find that it helps encourage me to either try different approaches with my texturing or to keep pushing forward by watching the model slowly come to life as color is applied. The Xoliul Shader usually automatically updates when a file is saved. If it doesn't though, you can easily manually reload the texture (**Fig.16**).

Continue to develop the finer details. At this stage you can add black lines to the finer seams, which are most noticeable on areas like the helmet and the chest armor. This serves the same purpose as in the previous step, just on a smaller scale. By pumping up these finer lines you really help sell the breaks in the material. The same sort of technique can be accomplished with a nice Cavity map as well, though I find Cavity maps can be too broad and a little unpredictable. For example, you may not want every crevice in your model to be exaggerated.

Also begin adding smaller color details to the model, such as smaller arrows that would be implying connection points and manufacturing details on the suit. I find this sort of detail helps ground the armor in reality by hinting that it is a product created for people (**Fig.17**).

Continue with the finer outline details and then move on to broader, gradient shadows in areas that will always be intersecting with another piece. I find that self-shadowing helps, though it is very easy to go overboard. The key here is to create subtle shadows and color differences that will help make the armor plates read better (**Fig.18**).

Next, move on to the character's face. Usually I like to start off with a photo reference, bringing in sections from different angles of the human
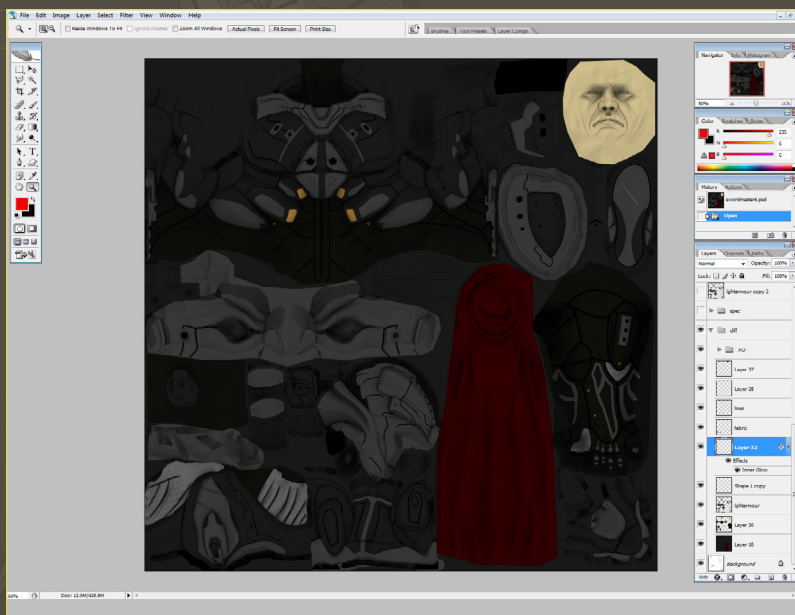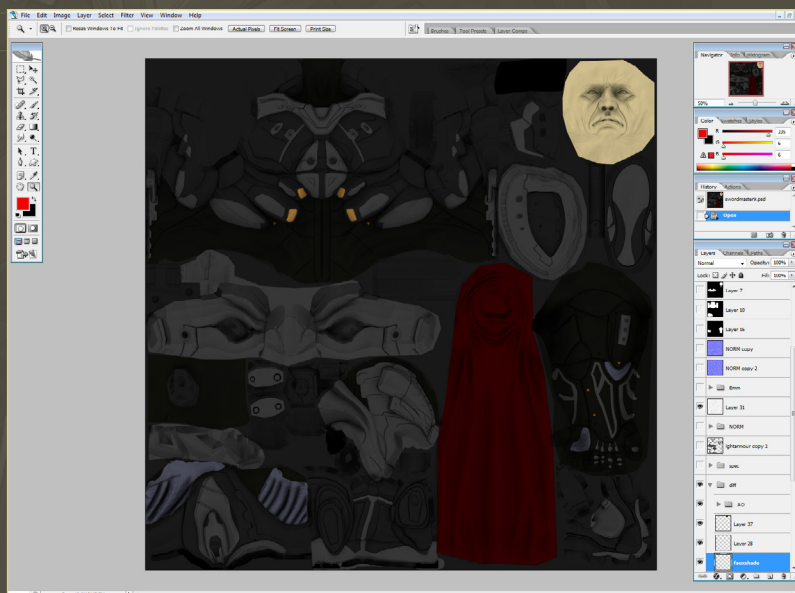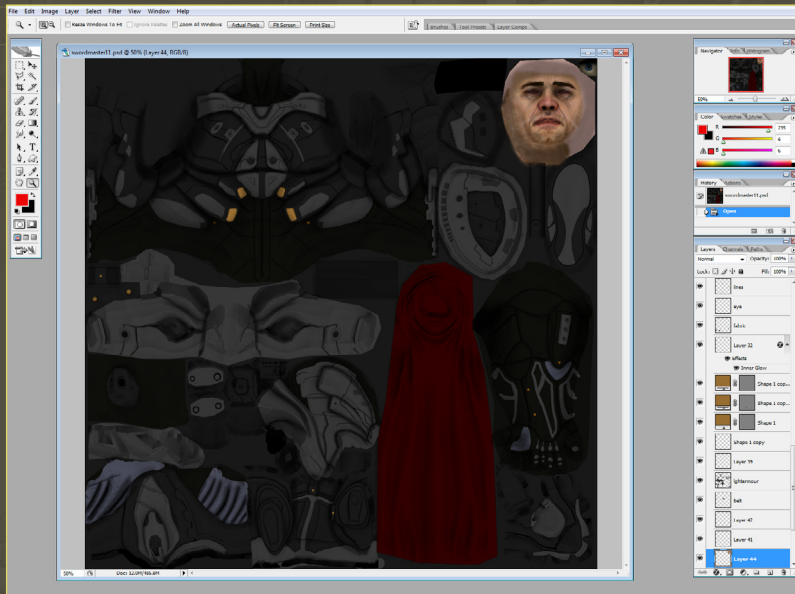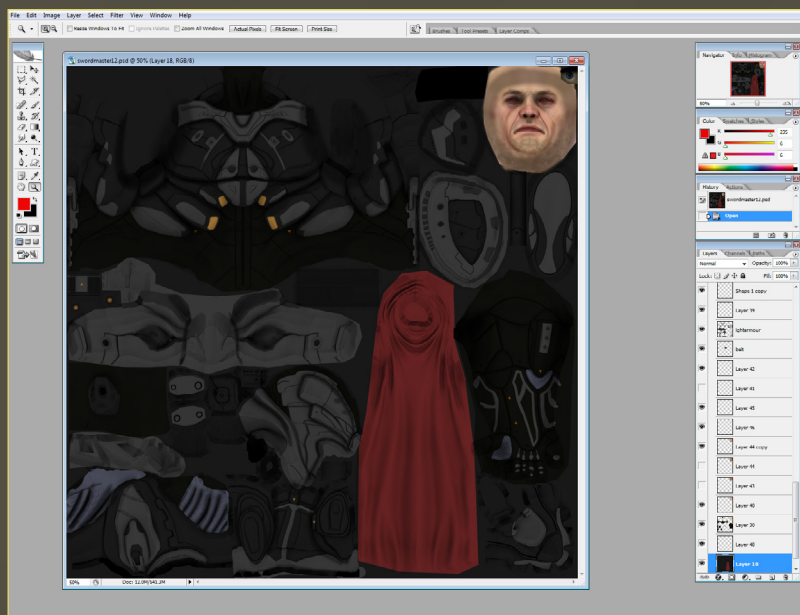
Fig 17

Fig 18

Fig 19

Fig 20

face and stitching them together in Photoshop. In this case, since the character's face really just consists of the front facing plane and not the entire head, it is fairly easy to bring in a front shot of a Caucasian male's face and line up the major elements using the Warp tool (**Fig.19**).

Brighten up areas of the texture and continue making feathered selections on the elements that need to conform to the face better, such as the lips and the eyebrows, using the Warp tool. By having a feathered selection the blending is a lot less rigid and easier to work with (**Fig.20**).

In this **Fig.21** you can see that I have blurred the original image slightly using a Gaussian Blur filter as well as smudging colors around to fit my model. From here you can also add some color correction layers, painting in reds where blood would be closer to the skin and blue tones where stubble may be. In general, especially for this character, I find that a more illustrative face is a better fit for a high tech, over-the-top kind of character.

Fig 21

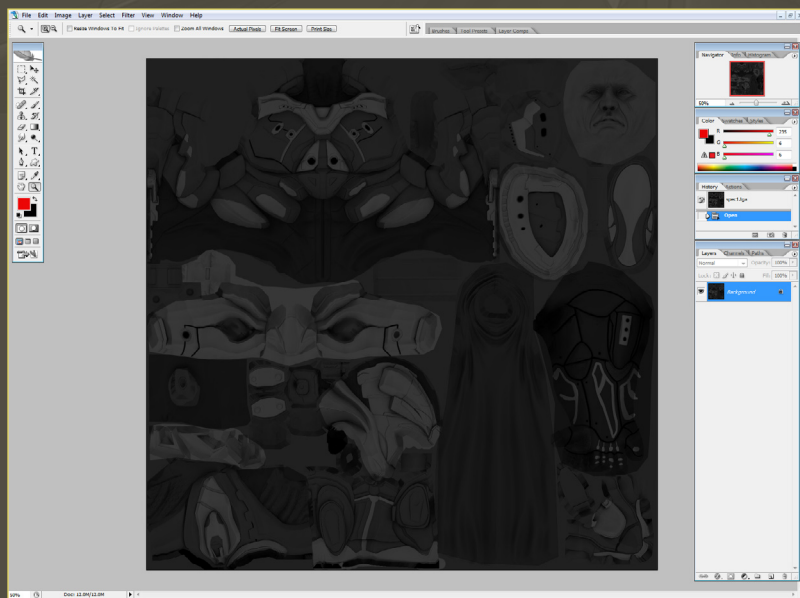Once you are done with the face, go over the entire texture again to punch up any areas that need more attention.

When you are happy with the color blocking on the diffuse texture, begin working on you Specular map. First desaturate your diffuse texture and begin tweaking the brightness of each color to represent how glossy the area will be. In this case our specular color will be taken care of in the engine/model viewer with a grayscale image driving which parts of the texture are shiny and which parts are not. The tightness of the specular highlights will also be handled in the viewer pro-grammatically, not by creating a texture (**Fig.22**).

Fig 22

3dcreative

Continue tweaking the different values and try to focus on a nice contrast between the lighter metal sections and darker metal sections. The end goal will be to have the lighter metal representing chrome (**Fig.23**).

Fig 23

At this stage begin dropping in subtle grunge maps over the texture taken from photo sources, to make the surface slightly imperfect. I find that having breaks in the surface texture within the Specular map helps sell the believability of the piece as the viewer will be able to see the fingerprints, scratches, dings and wear caused by use. Also bring in the black lines from the diffuse texture to help mark seams in the armor plates. As mentioned earlier, this will help break up the specular value along the model's surface and really make those armor plates pop out in the game render (**Fig.24**).

Fig 24

Next begin the subtle shading, add more lines and touch up the contrast throughout the entire texture (**Fig.25**).

Fig 25

Fig 26

You want the character's face to be fairly matte compared to the rest of the armor. Taking the diffuse texture information, desaturate the image and begin brightening and darkening the face. In general, areas that would have more oil collected in them will be brighter than the dryer areas, which will be darker. In this example you can see that the nose, lips and forehead are all brighter than the stubble and eye sockets of the character (**Fig.26**).
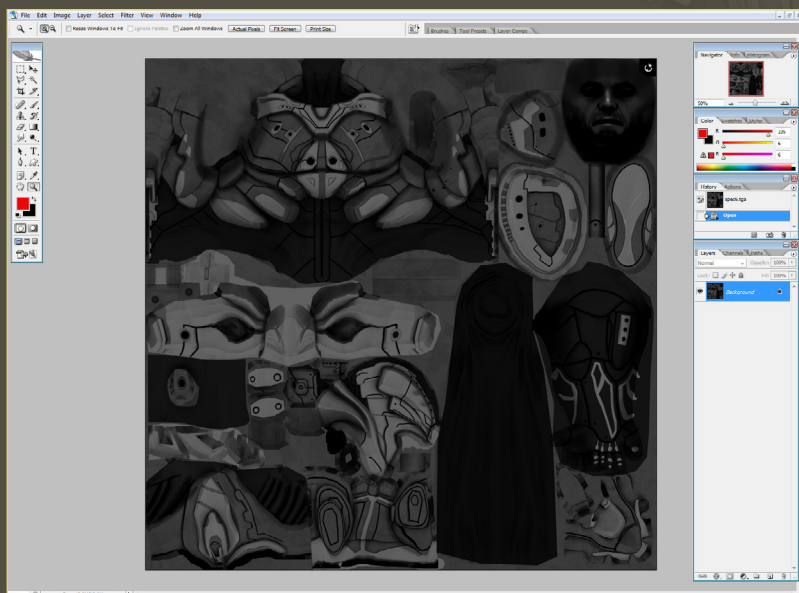

Fig 27

For the eye specular texture generally you will have the entire eyeball darker with highlights over the iris to help mimic the sharp highlights that would appear in real life over the raised surface. You can also use a Reflection map in this case, but I find that (depending on the Reflection map, Cube map and lighting situation) the eye can become too busy (**Fig.27**).

Fig 28

To finish the Specular map, pump up the black division lines by multiplying the layer and manually painting in thicker lines where needed. Add in scratches and dings by painting in sharp highlights on the texture where wear and tear or battle damage may occur. Keep most of the scratches fairly subtle as you don't want that information to become too distracting considering that the character's armor is already fairly detailed (**Fig.28**).

Finally, to complete the set of character textures create an Emmisive map. This map consists of the lights you previously painted in with the color that will glow and nothing else. In the final render this texture will cause these areas to glow, but will not actually give off light (**Fig.29**).

Fig 29
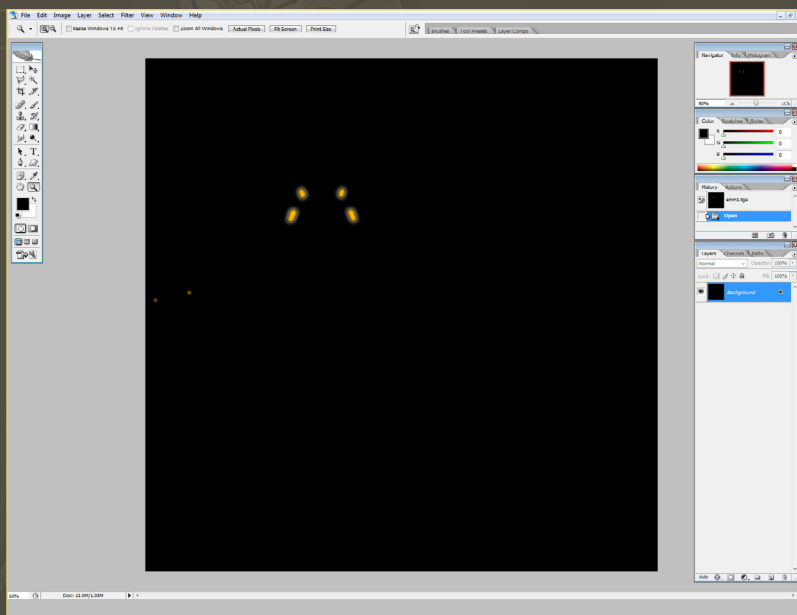
After all of the textures are complete load them into Max using the Xoliul Shader for one last preview. At this stage I would move on to an actual game render for a more accurate representation of what the character would look like in a game, since the render in Maya will be slightly different, which will be covered in the next chapter (**Fig.30**).

Next, move on to the weapons. Much like the beginning stages of the Swordmaster character himself, take the high resolution pieces and low resolution pieces, which all have mirrored UVs, and bring them into xNormal.

For the weapons you only need to do two render passes; one consisting of the main gun body, the sword blade and handle, and the other consisting of the gun's rails and sword hilt. This helps prevent rendering errors. Grab the UV map and use this as a guide, much like you did on the character textures (**Fig.31**).
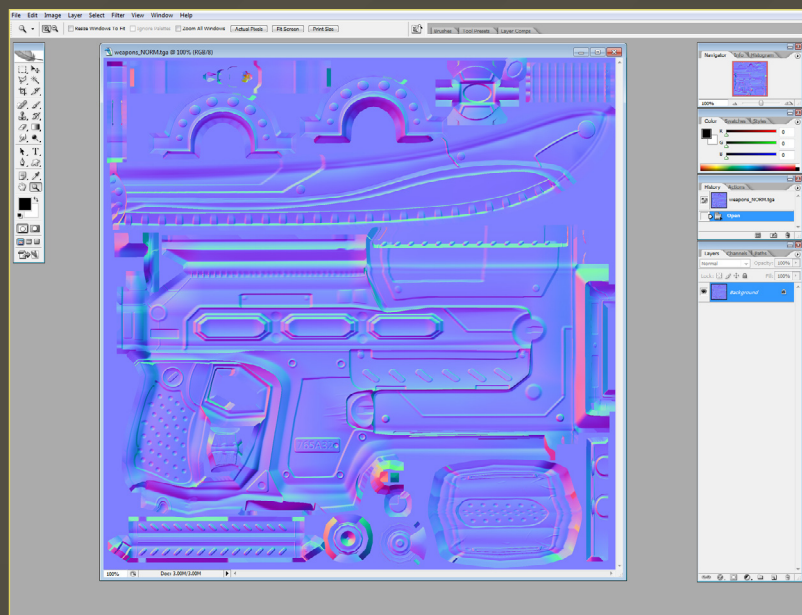
Fig 30

Fig 31

Fig 32

In **Fig.32** you can see that the Normal map bake is fairly clean. This is because I moved the mirrored UVs off to the side of the 1:1 box, which means you can avoid issues where the UV seams will be. For the most part we are really just rendering information on one half of the gun and sword, but need the geometry of the other half to make the normals render properly. If the mirrored geometry/UV information was not there a hard edge would be created in the Normal map. Once the maps are baked revert back to the old version of the model with overlapping UVs.

Fig 33

Much like the beginning stages of the character's diffuse Texture map, grab the weapon's Ambient Occlusion map and multiply it over the base metal color that is consistent with the character (**Fig.33**).

Fig 34

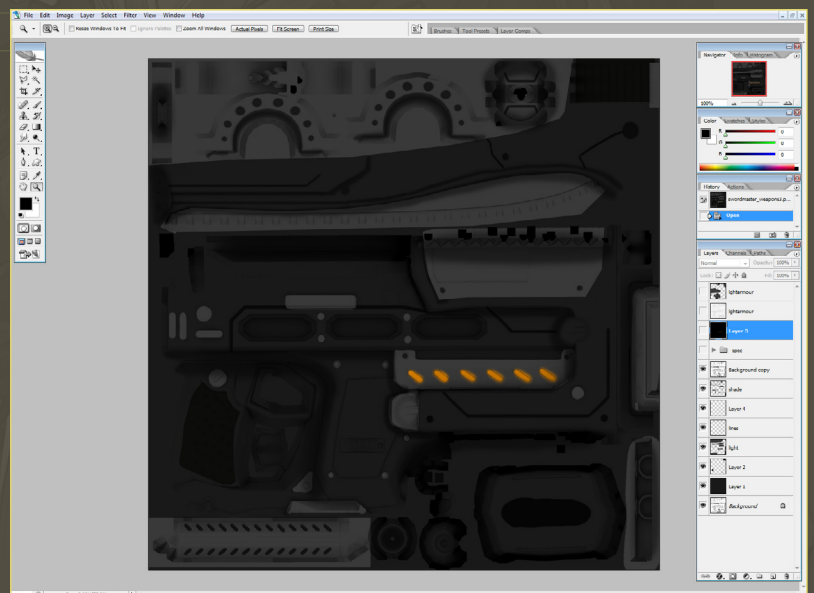Next preview how the bakes turned out in the Xoliul Shader in Maya (**Fig.34**).

3dcreative

From here grab the same colors used on the character and begin blocking out where the lighter metal areas will be on the weapons (**Fig.35**).
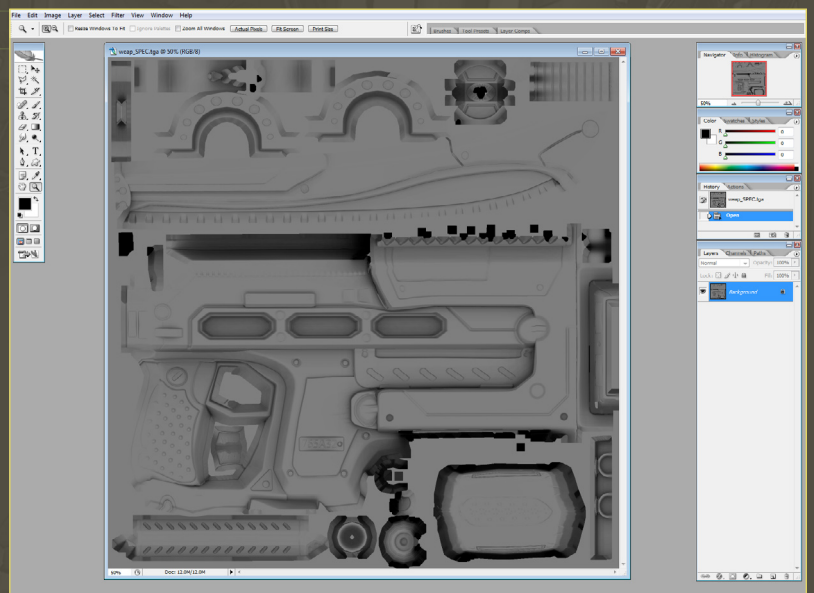

Fig 35

Finally pump up the contrast throughout the elements by painting in blacks between the metal plates and filling in holes such as along the rails and the seams along the back of the sword. Also paint in some orange lights, much like on the character, to help give the gun a splash of color (**Fig.36**).

Fig 36

To begin the weapon's Specular map grab the Ambient Occlusion layer and drop it over a light gray background (**Fig.37**).

Fig 37

Further define the shading and line work created in the diffuse texture to separate the different mechanical and metal areas. At this point you can really see how much work the Specular map does, both on the character and the weapons, as the grunge map comes into play. The actual metallic surface is fairly clean and technically has no color change, but the Specular map will control how light is reflected off of the surface and this will really help sell the metallic look. Had we baked this information into the diffuse texture, the metal would appear more like concrete with flakes of black and white in the surface itself (**Fig.38**).
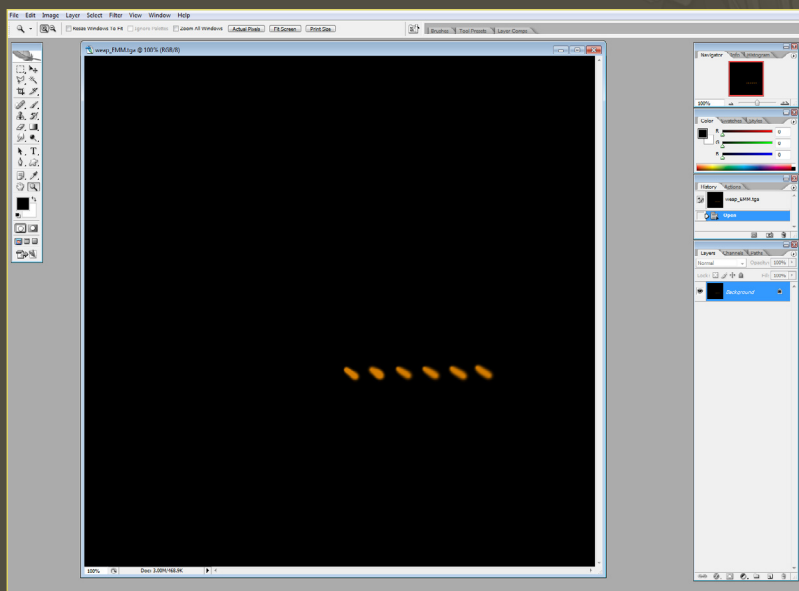

Fig 39

To finish off the weapon textures grab the lights you previously painted and drop them on a black background to create our weapon's Emmissive map (**Fig.39**).
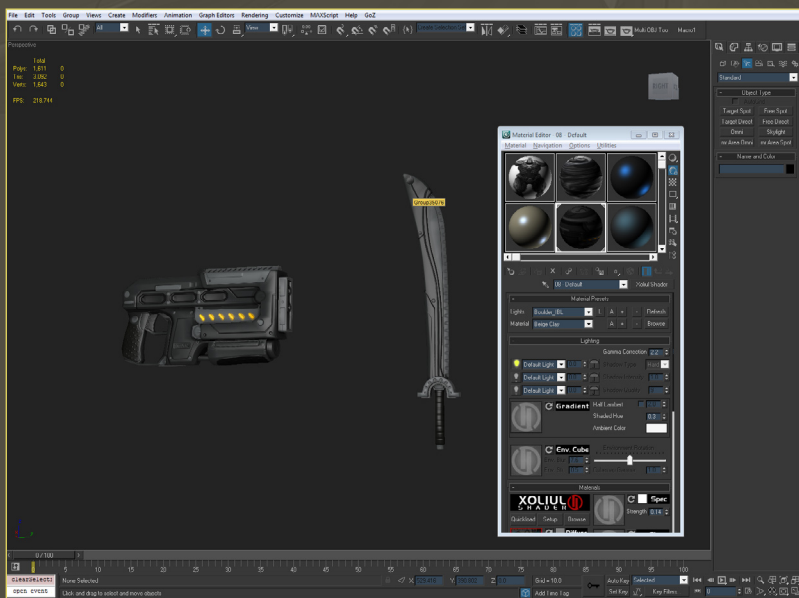

Fig 40

Finally load all of the textures into Maya and view the final result before posing the character model with accessories, and bringing it all into Marmoset for the final presentation shot (**Fig.40**).

GAVIN GOULDEN

For more from this artist visit:

http://www.gavimage.com/

Or contact him at:

gavin@gavimage.com

SWORD MASTER 2

CHAPTER 5 – TEXTURING

In 2006 3DTotal created some groundbreaking training that quickly made a name for itself as one of the best 3D training resources available; that series was called the Swordmaster! Well five years later the Swordmaster is back and better than ever. In this series industry professional Gavin Goulden will be talking you through how to take a concept and turn it into a top quality character ready for use in a game. From basic modeling through to sculpting and texturing, Gavin will cover every step in great detail so that even an inexperienced 3D artist will be able to comfortably follow this series.
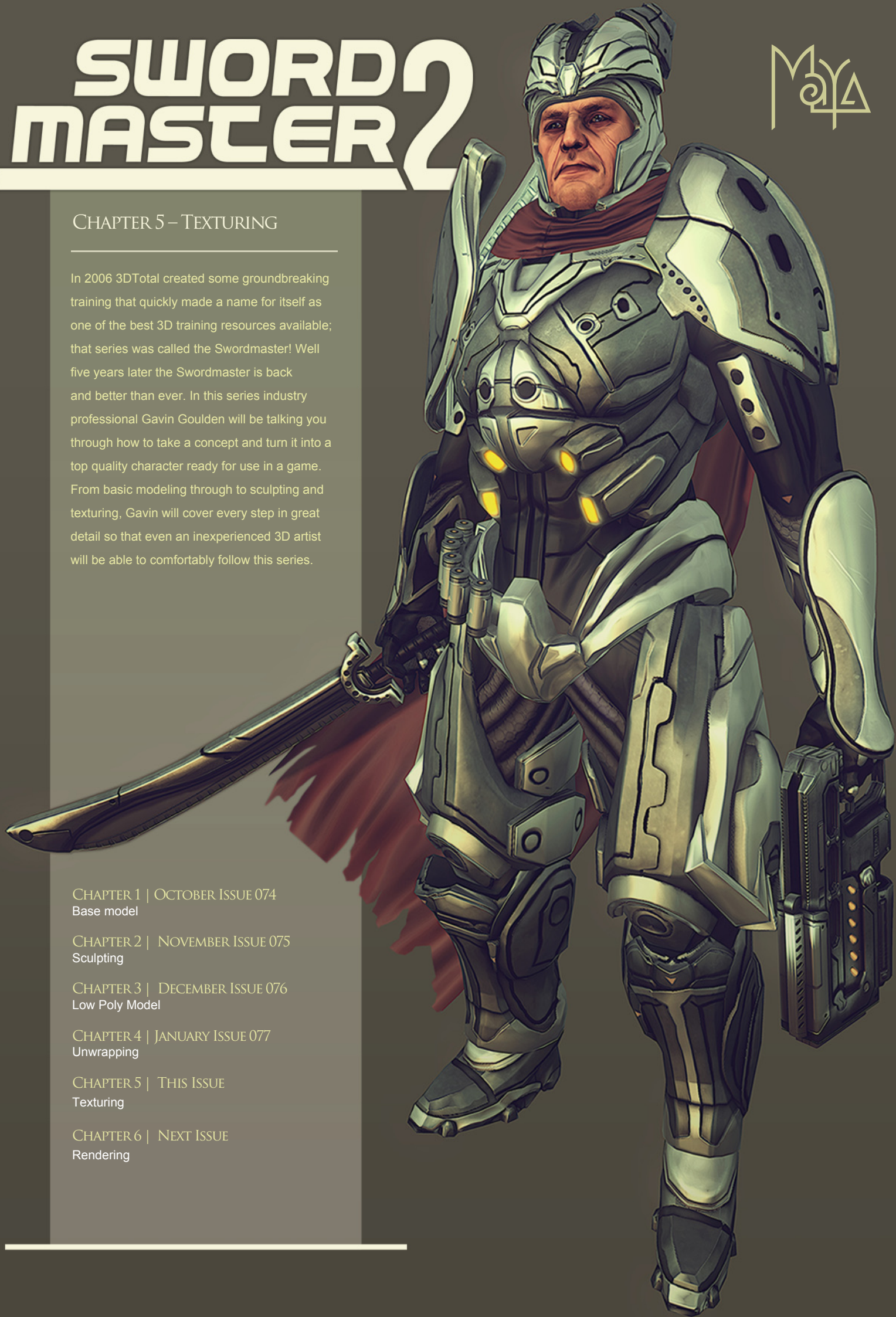
Maya

Chapter 5 – Texturing

Software used: Maya

Introduction

In this chapter we will be covering the creation of texture maps commonly used in today's video games. From the baking of Normal and Ambient Occlusion maps to hand-painting diffuse textures and FX, a good texture can really make or break a game model. Too much detail can become distracting, too much baked-in lighting can nullify the benefits of Normal maps and too little contrast or too few points of interest can leave a model looking bland.

First off, begin analyzing which portions you can group together for your texture baking. For the most part you want to avoid one chunk influencing another chunk. For example, the upper and lower leg will be baked separately since you do not want information on the high resolution version of the upper leg to be baked into and visible on the low resolution of the lower leg. The same example can be applied to the shoulder pads. Having information from the shoulder pads baked into the texture of the chest would lead to rendering errors.

It is also common practice to create an "exploded" version of your high resolution and low resolution models to avoid the same issues. Both methods work fine, although I personally find it easier to just create multiple bakes and compile them in Photoshop (**Fig.01**).

For texture baking, I like to use xNormal. XNormal is a free application created by Santiago Orgaz (http://www.xnormal.net/1.aspx) that is made specifically for baking maps of all types, or at least any type of map commonly used in the industry. Since there is no viewport, loading high resolution models into the program will practically not affect your machine and, since those rendering resources are not being used, your baking times will be reduced significantly.
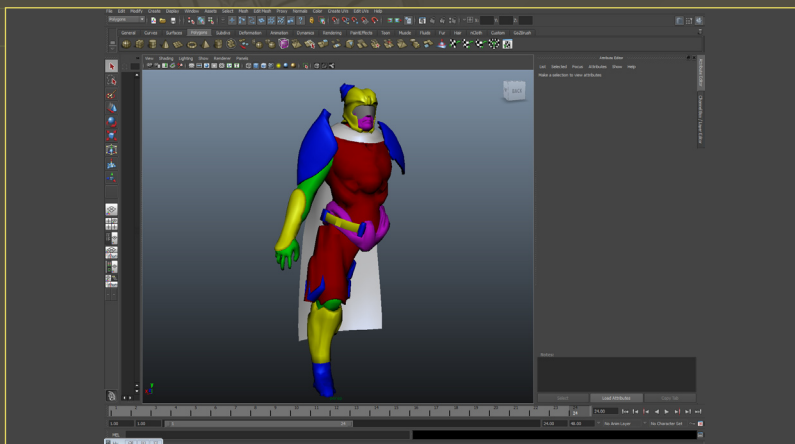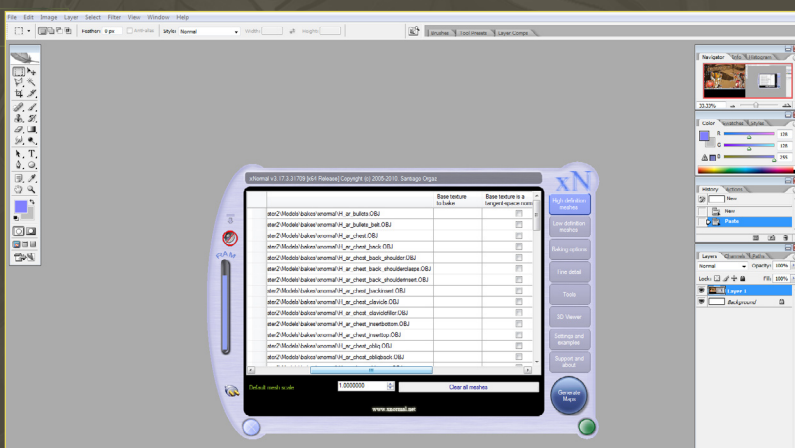
Fig 01

Fig 02

Fig 03

Fig 04

After you install xNormal open it up and navigate to the High Definition Meshes tab. This is where you will specify the high resolution target meshes that you have exported from ZBrush. To add meshes to the list, simply right-click over the cells and click Add Meshes. Generally, I add all of my meshes and use the checkbox to toggle their visibility. If it is easier for you, you can also add and remove meshes as needed instead (**Fig.02**).

Next, load in the low resolution model that was exported from Maya. Much like before, navigate to the Low Definition Meshes tab, right-click over the cell and add the meshes that you would like to use. I often set the mesh normals to Average Normals for each model, which is essentially the same as having just one smoothing group on your entire model.

When it comes to baking, xNormal is essentially using a uniform ray cast rather than a cage (though a projection cage can be created and used, if needed, in an external program like Maya using the SBM plug-in provided with xNormal). This means that whatever value you enter for the ray cast limits, xNormal will search at that distance for information and bake it into the maps you have specified.

For each chunk that you export you will more or less bake out a set of maps (usually just Normal and Ambient Occlusion.) Manage this through the checkboxes on the left and by toggling visibility on for related models. Once all of the maps are complete, compile them in Photoshop with the final result being one map of each type (**Fig.03**).

If you navigate to the Baking Options tab you will be able to specify where the maps will be saved to, as well as the dimensions of the Texture map. I tend to bake maps larger than needed in case the model will need to be used in a high resolution like cinematics or print. In this case, I'm baking a square 2048 map, which is fairly standard.
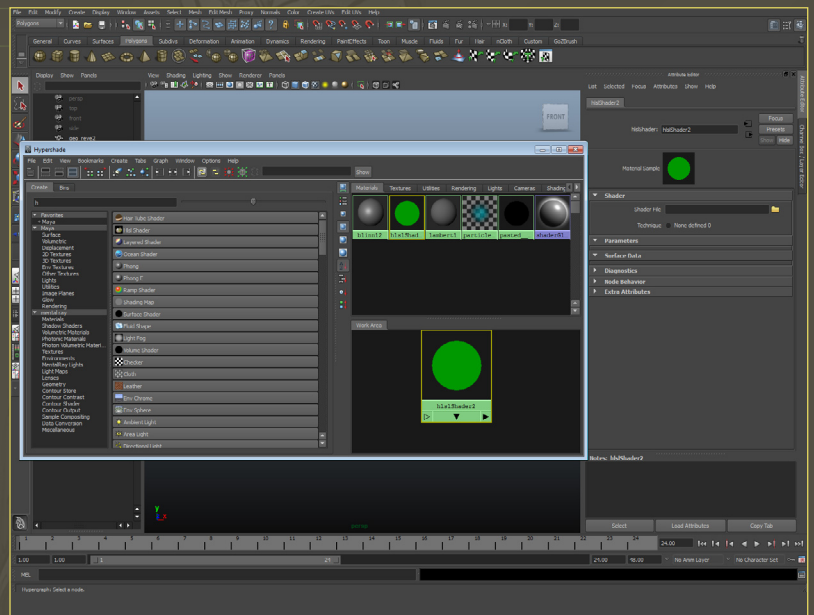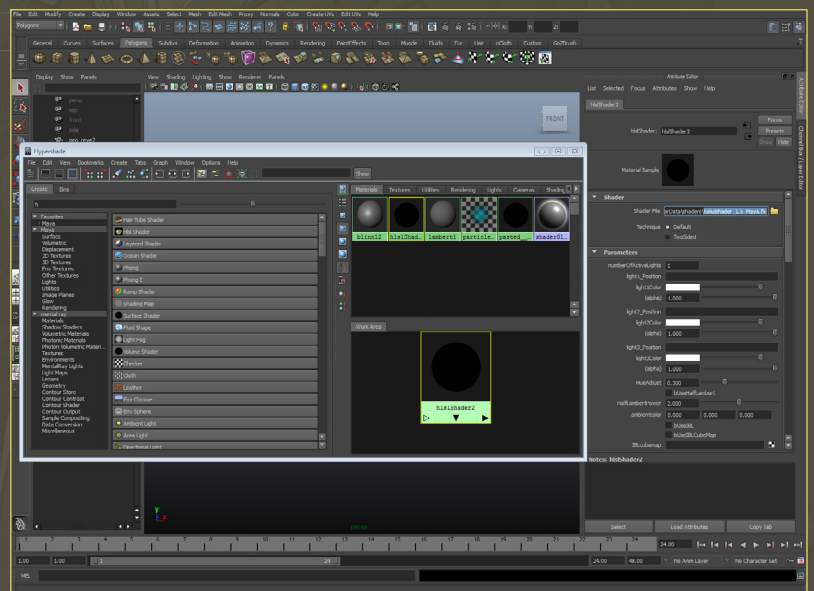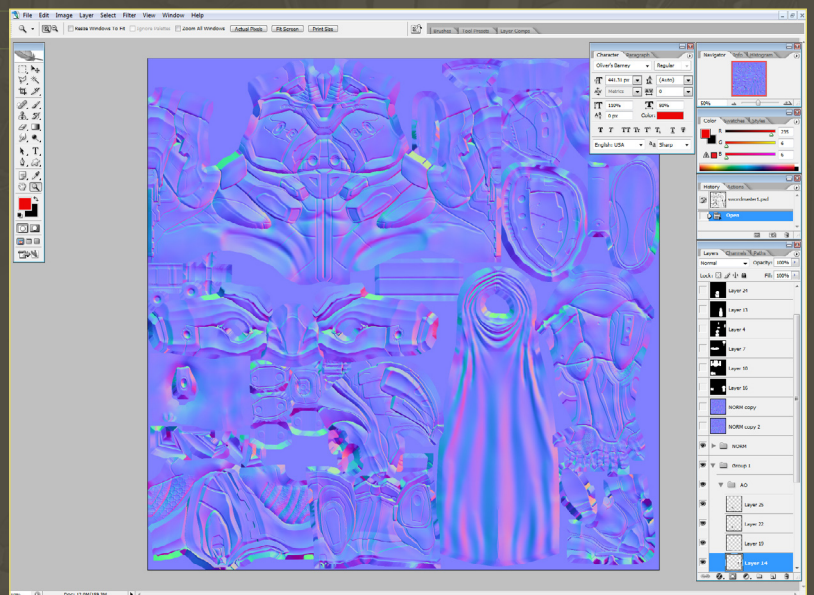
Fig 05

Fig 06

Fig 07

Fig 08

Fig 09

Fig 10

Here you can also flag which types of map you would like to create as well as the Antialising quality (which significantly increases rendering times) and edge padding. Edge padding is used to help textures mix properly and avoid texture seams when doing so, which is also why it is wise to leave some space between your UV islands. When everything is set to your liking, click Generate Maps. Once the preview finishes, your map is baked and ready to be used (**Fig.04**).

To view textures on my models, I use Xoliul Shader v1.5 for Maya. Download the files from this website (http://www.laurenscorijn. com/viewportshader) and make sure that you have "hlslShader.mll" enabled in the Window > Settings > Preferences > Plug-In Manager within Maya.

Next, create an hlsl material in the Hypershade menu. Open Rendering Editors > Hypershade and navigate to Create > Materials > HLSL Shader. This will create what appears to be a solid green ball in the materials window (**Fig.05**).

Now, click on the hlsl shader ball and you will be able to access it's properties and assign our Xoliul Shader. Simply click on the folder icon next to Shader File and navigate to the .FX file you downloaded. Once the shader initializes, a custom user interface will appear in the Material Editor, which will provide you with a healthy suite of options including texture types, atmospherics and rendering technique. Apply this material to your model and simply click on the appropriate texture type to navigate to your textures and then load them into the scene.

Set the rendering mode to Two-Sided so that flat planes, like the cape, will render as if it were double-sided. For the initial setup hold off using fresnel and reflections within the shader, but feel free to play with the different settings until you reach a result you like. In order to allow the shader to render a Texture map, you must enable each map as well as assigning a texture

into the appropriate slot. So, for example, you will need to check bUseNormalMap as well as assigning a Texture map as you normally would (**Fig.06**).

After compiling the different Normal maps together that have been baked using xNormal, use the alpha channel of each image as a mask to assist with preventing overlaps as some elements may bleed over on to another one, which will cause rendering problems. If trouble areas are spotted, like inaccurate bakes, you can either hand alter it in Photoshop using the Smudge tools or Standard brush, or simply create a new bake that is more tailored to that specific area (**Fig.07**).

Using the same method as the Normal map creation, gather all of the ambient occlusion textures together into one image. The ambient occlusion will initially be used as a guide for where to paint different materials. In the final product, the ambient occlusion texture will be used very subtly to help ground certain elements (**Fig.08**).

Once you are happy with how the Ambient Occlusion map looks, set its blending mode to Multiply and drop a neutral color underneath it. In this case, I have a layer of dark gray, which will more or less act as the base color for the Swordmaster character.

My approach for texturing is to work on all the areas at the same time so that the entire character progresses evenly. It can be distracting and, in some cases, problematic to only focus on small areas at a time as it can become hard to see the big picture. On personal work I find that I can actually lose steam as well if I spend too much time on one area and do not see enough progress overall (**Fig.09**).

The Xoliul Shader 1.5 requires you to use flat images with the shader as it has problems processing PSDs. I like to use TGA files and keep a PSD as my source, un-flattened image.
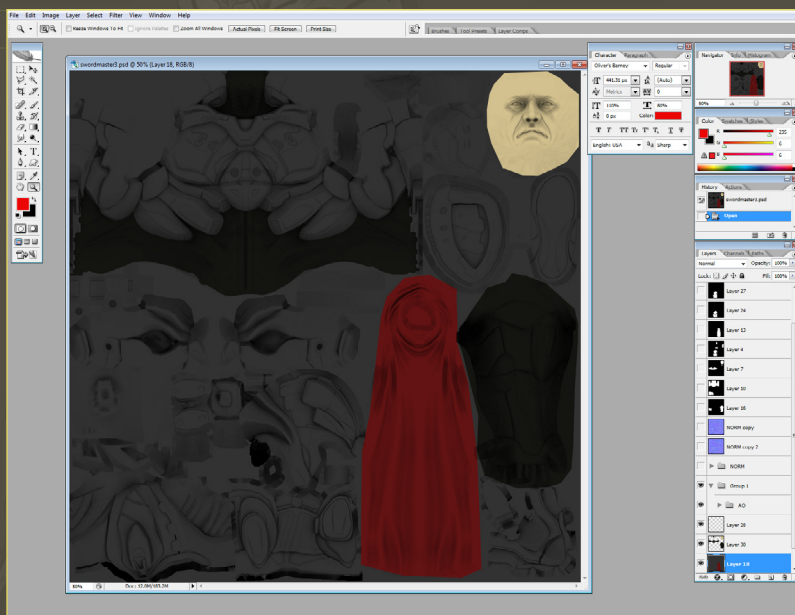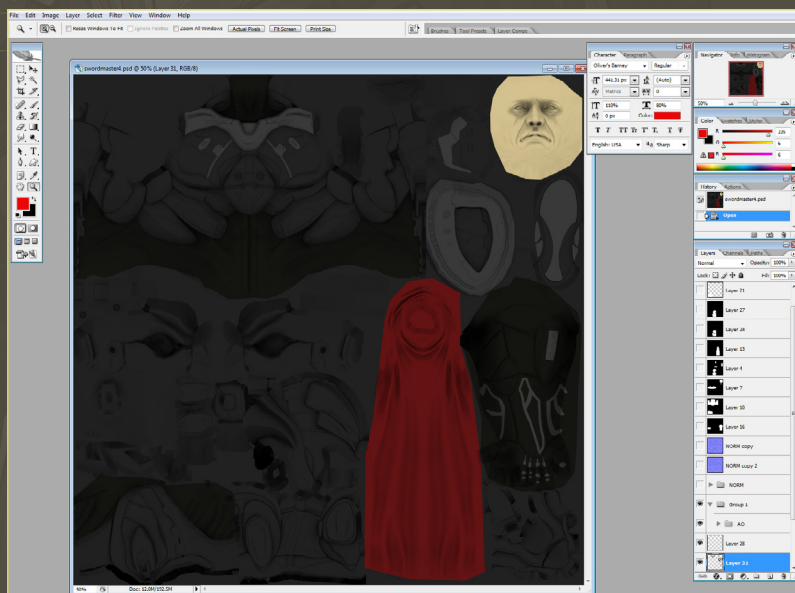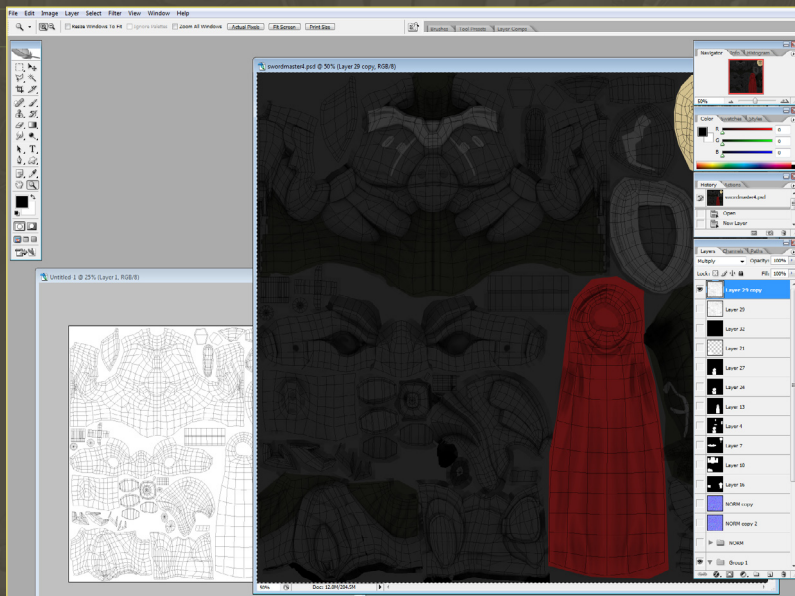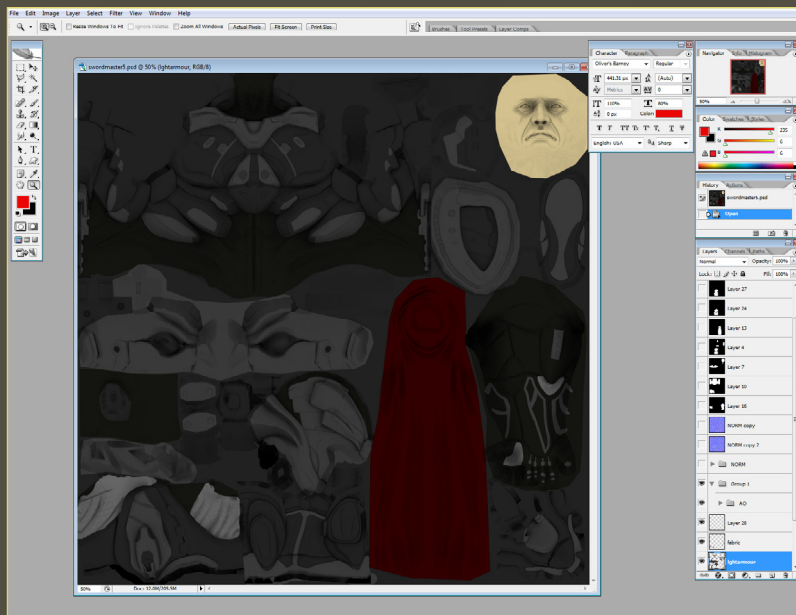
Fig 11

Fig 12

Fig 13

Fig 14

Fig 15

Fig 16

I also like to use a naming convention that has a shortened version of the map type as a suffix. For example, "swordmaster_DIFF" and "swordmaster_NORM".

To start off just focus on the diffuse texture and Normal map information, though it is a good idea to work on your Specular and/or Gloss maps at the same time before too much information gets baked into the diffuse texture that wouldn't necessarily change specular values. Once the maps are saved out, load them into the viewport shader to see the final result in 3D. If you spot any errors manually touch them up or re-bake the information in extreme cases (**Fig.10**).
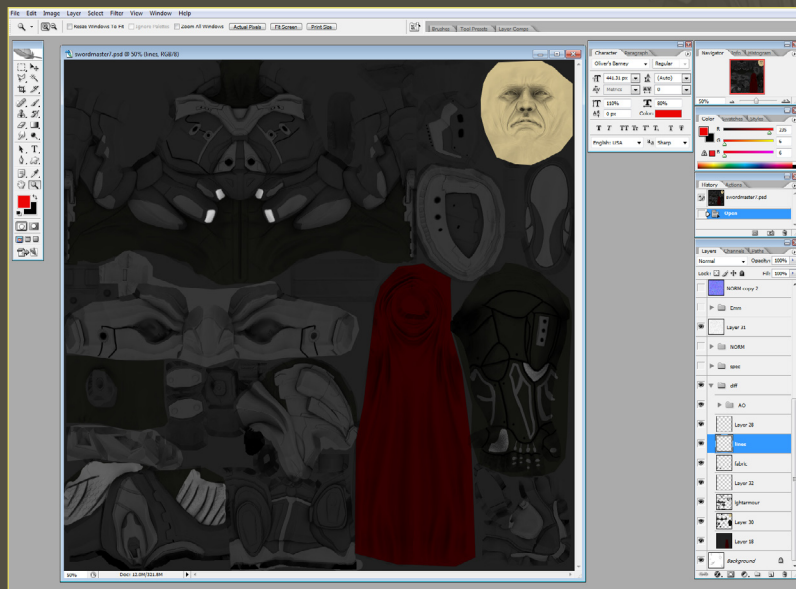
Next, begin defining the different material types by lasso selecting the area or by painting with a hard brush at full opacity. At this stage, just focus on the bigger material changes, which are namely metal, rubber, flesh and fabric.

For the most part the materials on this character are pretty clean and simple. Most of the work in the diffuse texture will be breaking and popping armor plates off in interesting ways, such as outlining in black and slight color changes. In this case any noise in the texture should be handled in the Specular map as the surface material itself is clean/not destroyed, rusted and fairly streamlined. The Specular map will hold all of the imperfections in the surface that will be visible in different lighting conditions (**Fig.11**).
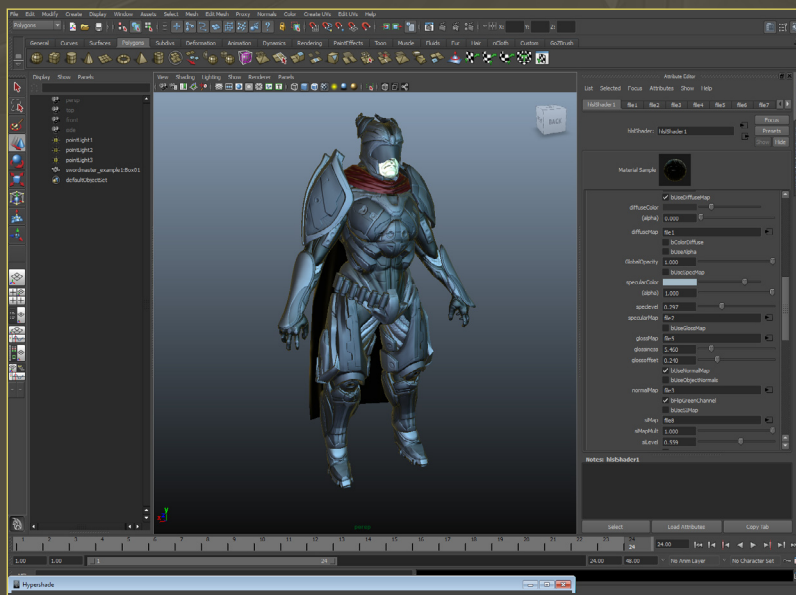
Moving forward, start to define the smaller differences in material types within the metal plating. This really helps pop out plates from the surrounding area and, in this case, really helps add some points of interest. A good example of this is the metallic detailing along the arm's under armor and the lighter metal against the darker surface of the chest (**Fig.12**).

Render out a rough UV map, invert it and set it to Multiply over the top of your texture. This just helps define the boundaries of each element,

where you shouldn't paint and where the different regions are that you may have missed in the initial color blocking stage (**Fig.13**).

Next, distinguish the different material types within the armor. Once you get to this stage you can start to add some finer details such as painting in the knuckle plates and details on the boots. Keep these different material types on separate layers within your texture for easy selections as well as making life easier in the future when you create your Specular map. For the most part, each material will have a different spec value, so not having them flattened into one layer will make it much easier to adjust (**Fig.14**).

Next, begin painting crisp black lines on the seams of the armor and under armor to help define each element. This detail will also be carried over to the Specular map to assist with the same goal by breaking specular highlights in between plates. Also begin to fill in the holes with black to imply more depth in the model (**Fig.15**).

It is always a good idea to check your work regularly when working on a texture. Not only does it help you spot mistakes, I find that it helps encourage me to either try different approaches with my texturing or to keep pushing forward by watching the model slowly come to life as color is applied. The Xoliul Shader usually automatically updates when a file is saved. If it doesn't though, you can easily manually reload the texture (**Fig.16**).

Continue to develop the finer details. At this stage you can add black lines to the finer seams, which are most noticeable on areas like the helmet and the chest armor. This serves the same purpose as in the previous step, just on a smaller scale. By pumping up these finer lines you really help sell the breaks in the material. The same sort of technique can be accomplished with a nice Cavity map as well, though I find Cavity maps can be too broad
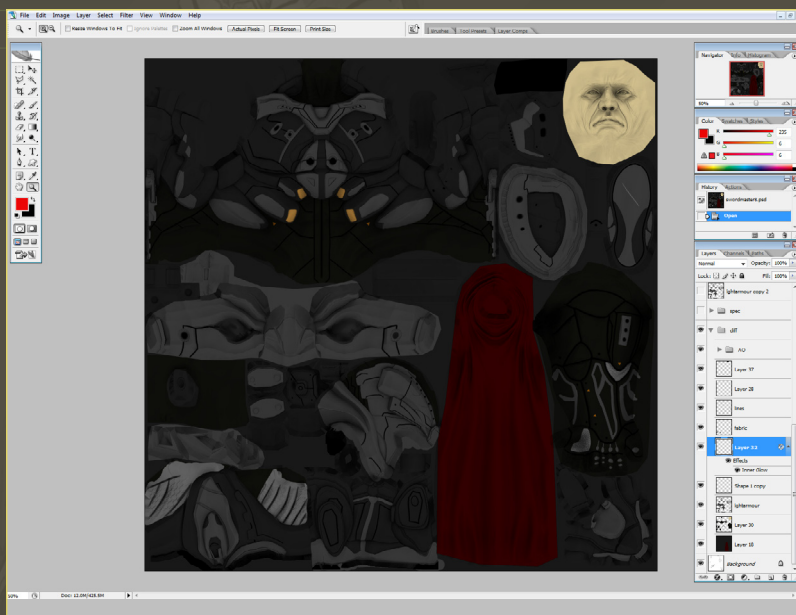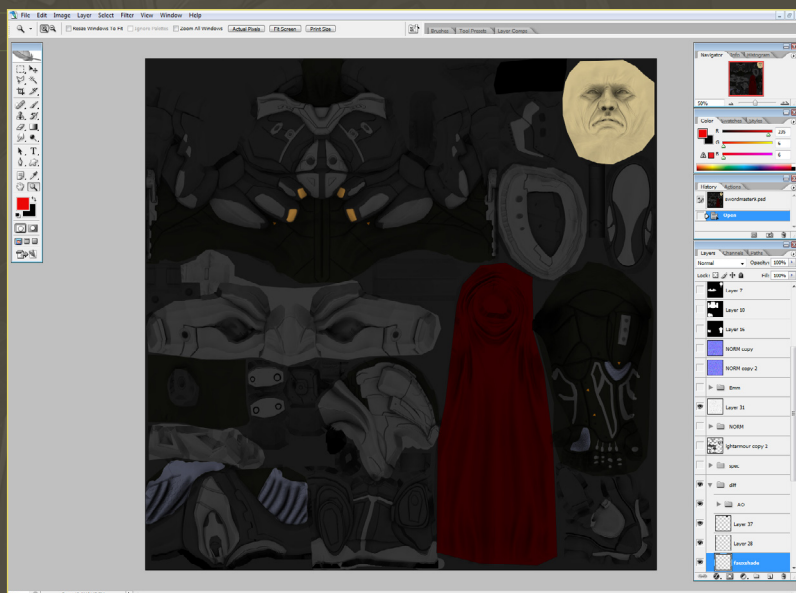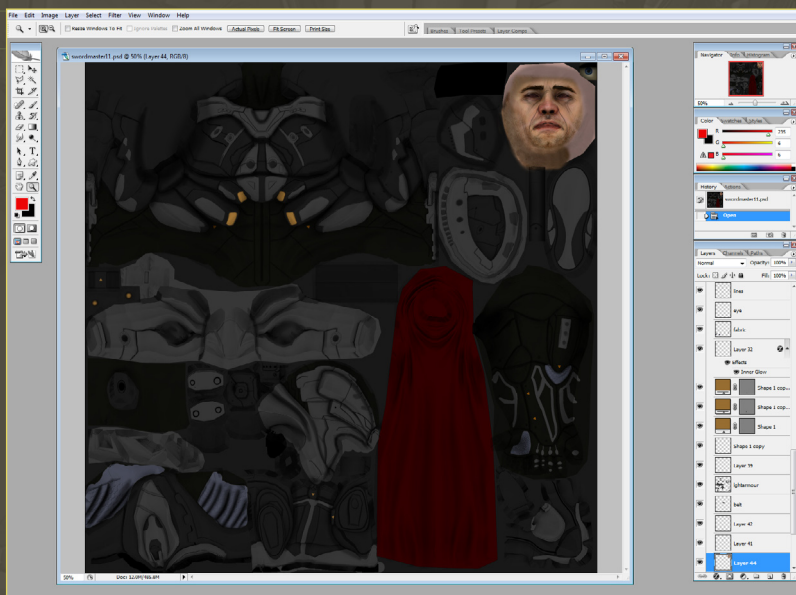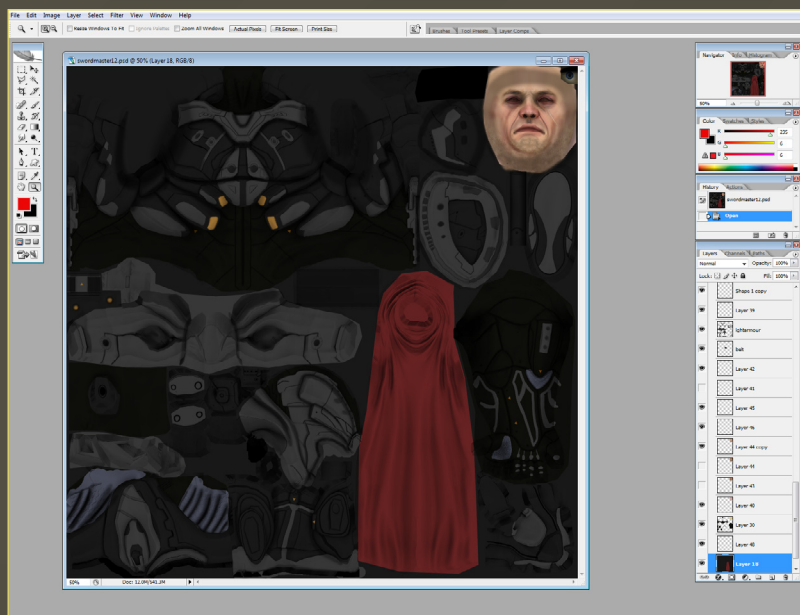
Fig 17

Fig 18

Fig 19

Fig 20

Fig 21

Fig 22

and a little unpredictable. For example, you may not want every crevice in your model to be exaggerated.

Also begin adding smaller color details to the model, such as smaller arrows that would be implying connection points and manufacturing details on the suit. I find this sort of detail helps ground the armor in reality by hinting that it is a product created for people (**Fig.17**).

Continue with the finer outline details and then move on to broader, gradient shadows in areas that will always be intersecting with another piece. I find that self-shadowing helps, though it is very easy to go overboard. The key here is to create subtle shadows and color differences that will help make the armor plates read better (**Fig.18**).
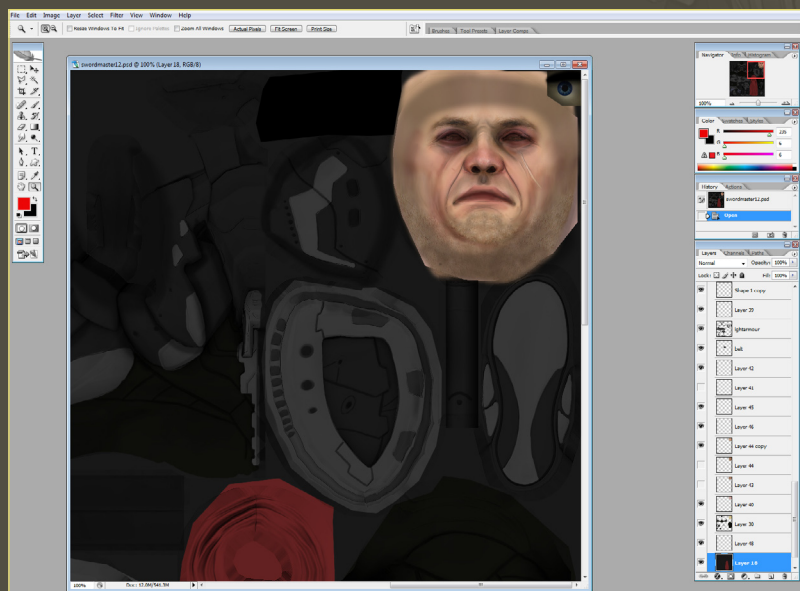
Next, move on to the character's face. Usually I like to start off with a photo reference, bringing in sections from different angles of the human face and stitching them together in Photoshop. In this case, since the character's face really just consists of the front facing plane and not the entire head, it is fairly easy to bring in a front shot of a Caucasian male's face and line up the major elements using the Warp tool (**Fig.19**).

Brighten up areas of the texture and continue making feathered selections on the elements that need to conform to the face better, such as the lips and the eyebrows, using the Warp tool. By having a feathered selection the blending is a lot less rigid and easier to work with (**Fig.20**).
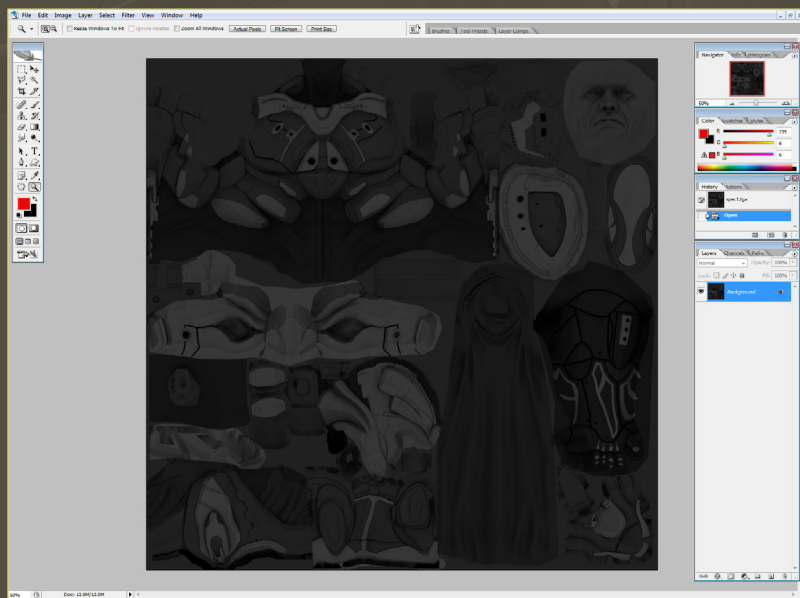
In this **Fig.21** you can see that I have blurred the original image slightly using a Gaussian Blur filter as well as smudging colors around to fit my model. From here you can also add some color correction layers, painting in reds where blood would be closer to the skin and blue tones where stubble may be. In general, especially for this character, I find that a more illustrative face is a better fit for a high tech, over-the-top kind of character.

3dcreative

Once you are done with the face, go over the entire texture again to punch up any areas that need more attention.

When you are happy with the color blocking on the diffuse texture, begin working on you Specular map. First desaturate your diffuse texture and begin tweaking the brightness of each color to represent how glossy the area will be. In this case our specular color will be taken care of in the engine/model viewer with a grayscale image driving which parts of the texture are shiny and which parts are not. The tightness of the specular highlights will also be handled in the viewer pro-grammatically, not by creating a texture (**Fig.22**).

Continue tweaking the different values and try to focus on a nice contrast between the lighter metal sections and darker metal sections. The end goal will be to have the lighter metal representing chrome (**Fig.23**).

At this stage begin dropping in subtle grunge maps over the texture taken from photo sources, to make the surface slightly imperfect. I find that having breaks in the surface texture within the Specular map helps sell the believability of the piece as the viewer will be able to see the fingerprints, scratches, dings and wear caused by use. Also bring in the black lines from the diffuse texture to help mark seams in the armor plates. As mentioned earlier, this will help break up the specular value along the model's surface and really make those armor plates pop out in the game render (**Fig.24**).

Next begin the subtle shading, add more lines and touch up the contrast throughout the entire texture (**Fig.25**).
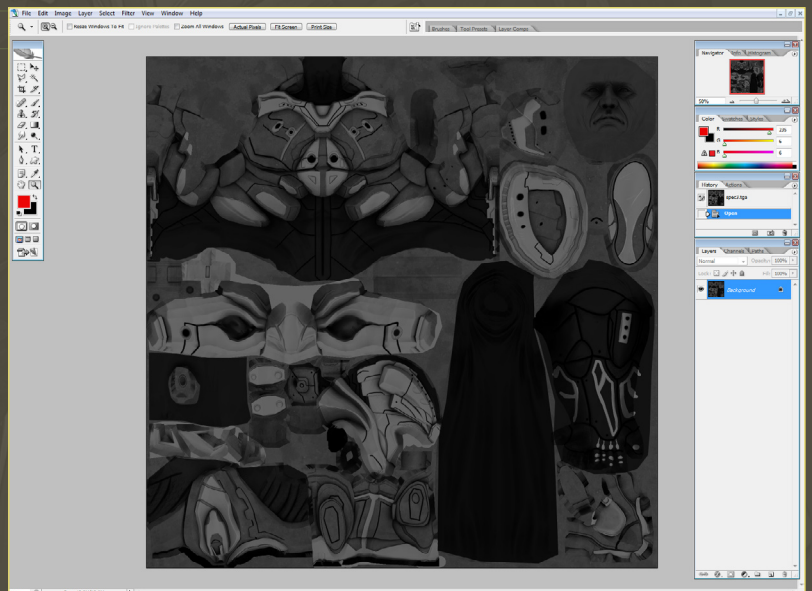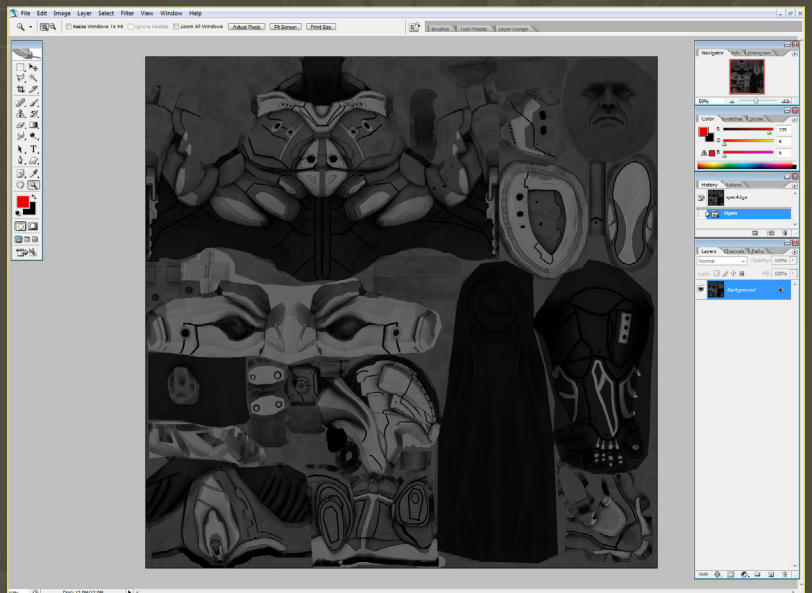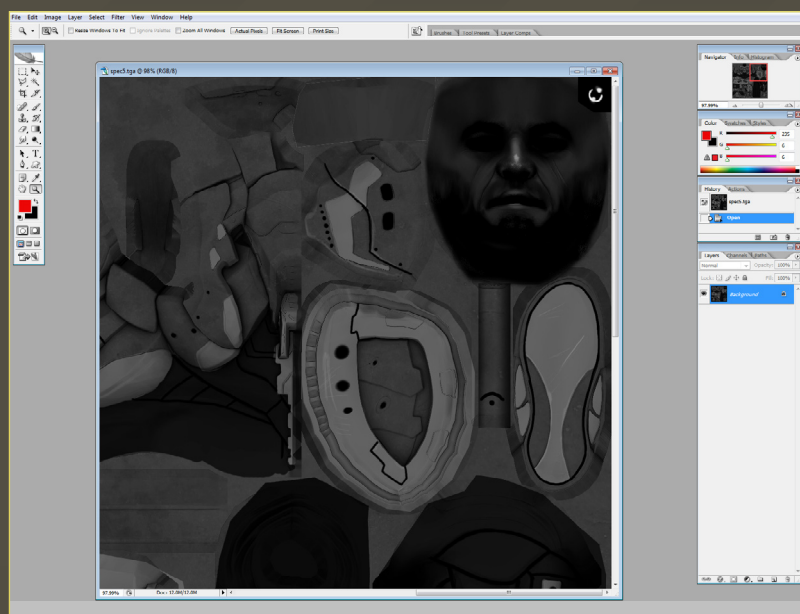
Fig 23

Fig 24

Fig 25

Fig 26

You want the character's face to be fairly matte compared to the rest of the armor. Taking the diffuse texture information, desaturate the image and begin brightening and darkening the face. In general, areas that would have more oil collected in them will be brighter than the dryer areas, which will be darker. In this example you can see that the nose, lips and forehead are all brighter than the stubble and eye sockets of the character (**Fig.26**).

Fig 27

For the eye specular texture generally you will have the entire eyeball darker with highlights over the iris to help mimic the sharp highlights that would appear in real life over the raised surface. You can also use a Reflection map in this case, but I find that (depending on the Reflection map, Cube map and lighting situation) the eye can become too busy (**Fig.27**).
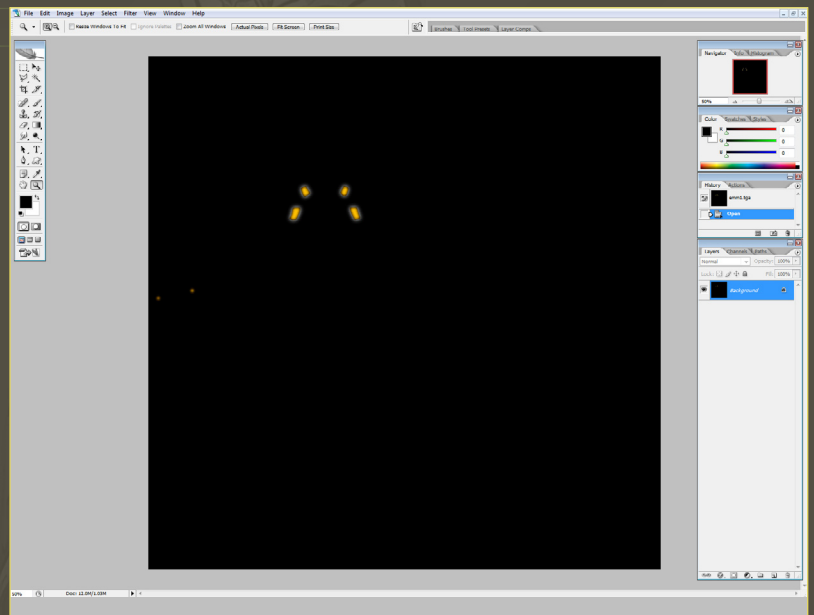

Fig 28

To finish the Specular map, pump up the black division lines by multiplying the layer and manually painting in thicker lines where needed. Add in scratches and dings by painting in sharp highlights on the texture where wear and tear or battle damage may occur. Keep most of the scratches fairly subtle as you don't want that information to become too distracting considering that the character's armor is already fairly detailed (**Fig.28**).

3dcreative

Finally, to complete the set of character textures create an Emmisive map. This map consists of the lights you previously painted in with the color that will glow and nothing else. In the final render this texture will cause these areas to glow, but will not actually give off light (**Fig.29**).

Fig 29

After all of the textures are complete load them into Maya using the Xoliul Shader for one last preview. At this stage I would move on to an actual game render for a more accurate representation of what the character would look like in a game, since the render in Maya will be slightly different, which will be covered in the next chapter (**Fig.30**).
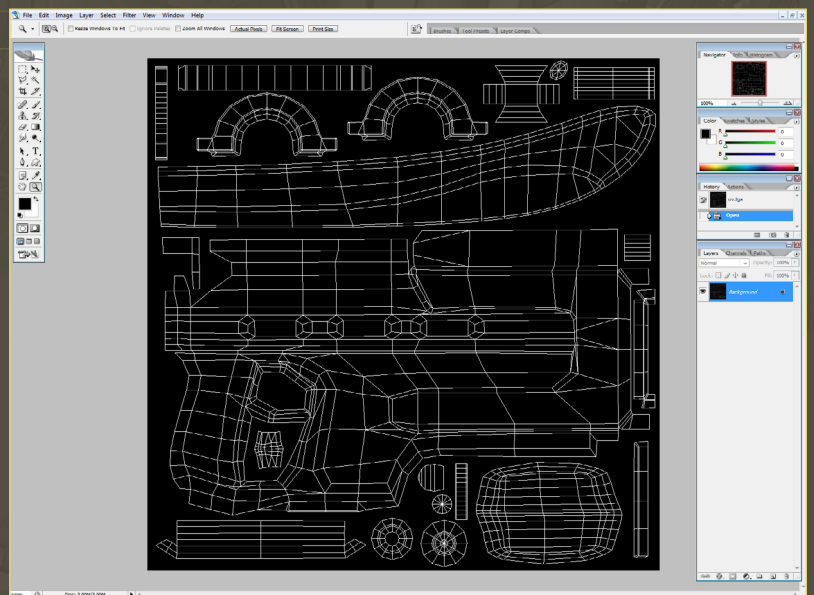
Next, move on to the weapons. Much like the beginning stages of the Swordmaster character himself, take the high resolution pieces and low resolution pieces, which all have mirrored UVs, and bring them into xNormal.

For the weapons you only need to do two render passes; one consisting of the main gun body, the sword blade and handle, and the other consisting of the gun's rails and sword hilt. This helps prevent rendering errors. Grab the UV map and use this as a guide, much like you did on the character textures (**Fig.31**).
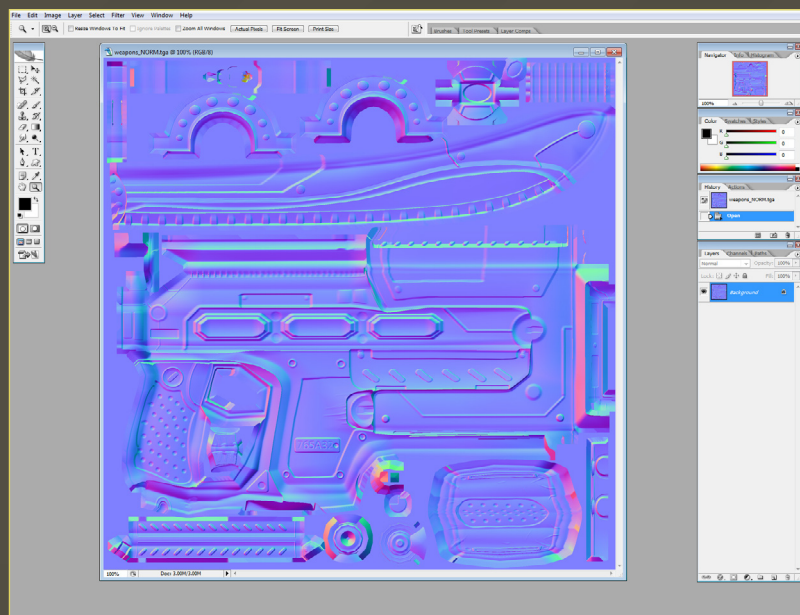
Fig 30

Fig 31

Fig 32

In **Fig.32** you can see that the Normal map bake is fairly clean. This is because I moved the mirrored UVs off to the side of the 1:1 box, which means you can avoid issues where the UV seams will be. For the most part we are really just rendering information on one half of the gun and sword, but need the geometry of the other half to make the normals render properly. If the mirrored geometry/UV information was not there a hard edge would be created in the Normal map. Once the maps are baked revert back to the old version of the model with overlapping UVs.
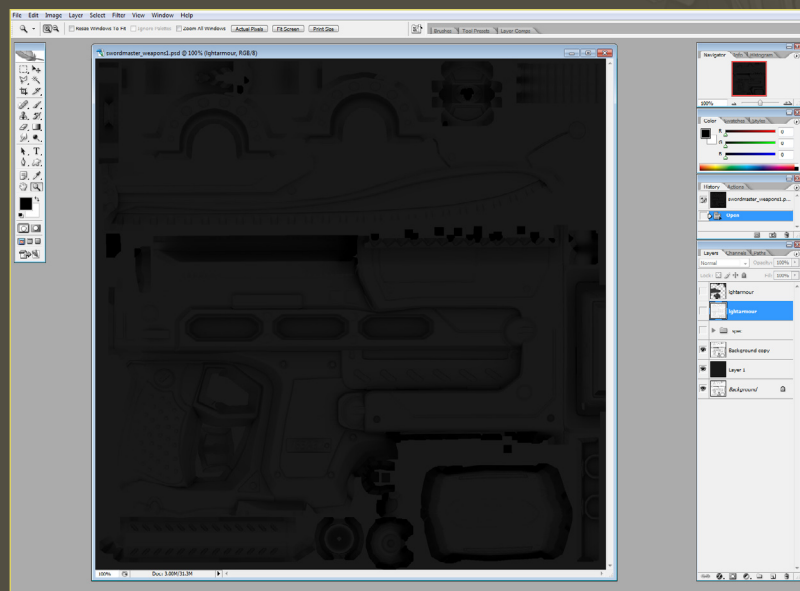

Fig 33

Much like the beginning stages of the character's diffuse Texture map, grab the weapon's Ambient Occlusion map and multiply it over the base metal color that is consistent with the character (**Fig.33**).
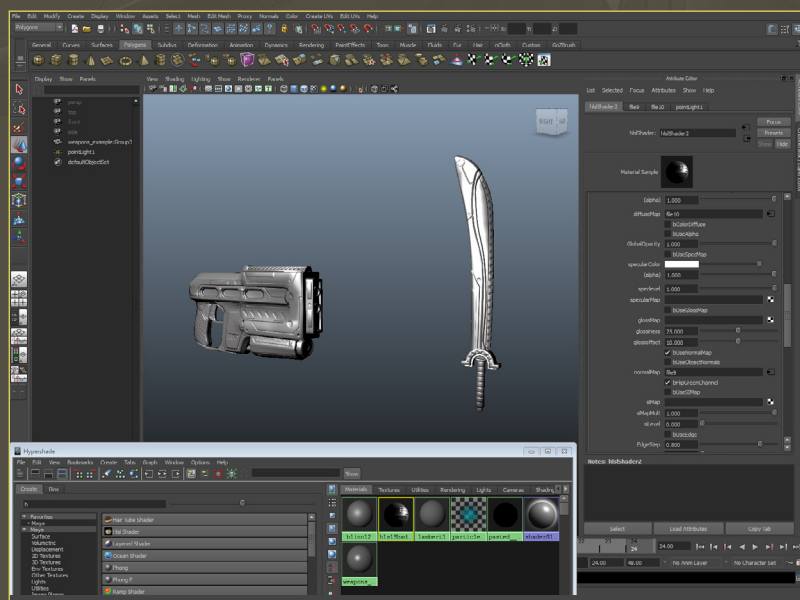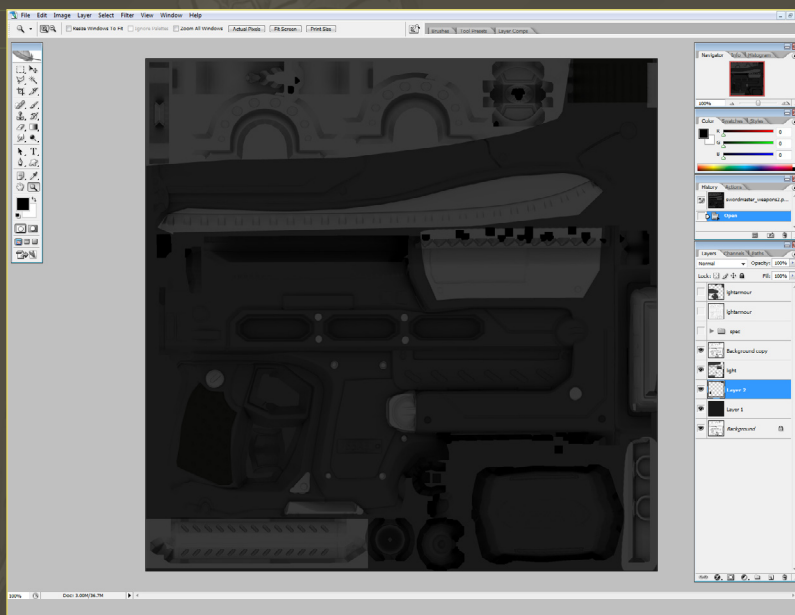

Fig 34

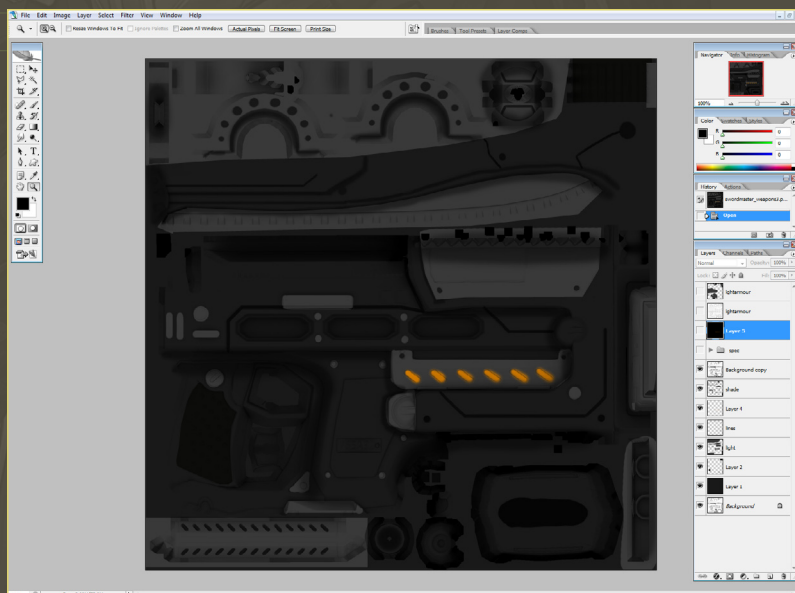Next preview how the bakes turned out in the Xoliul Shader in Maya (**Fig.34**).

From here grab the same colors used on the character and begin blocking out where the lighter metal areas will be on the weapons (**Fig.35**).
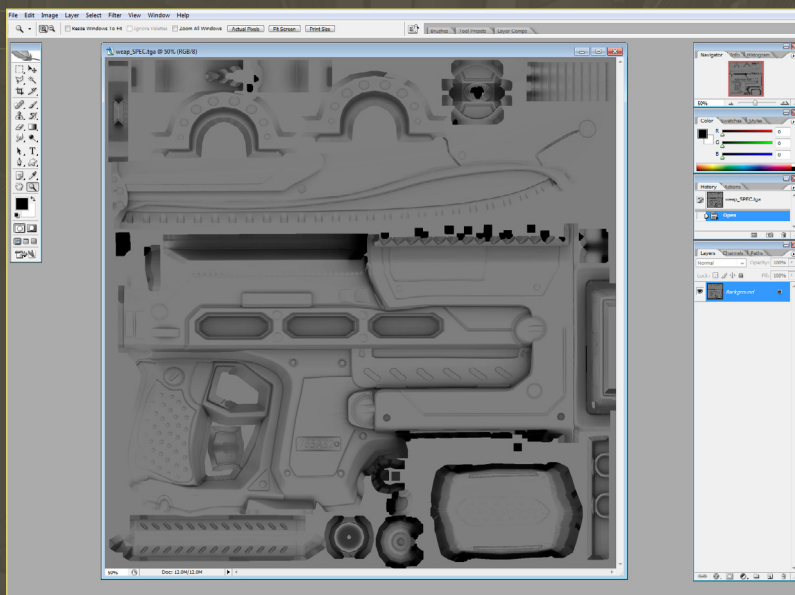
Fig 35

Finally pump up the contrast throughout the elements by painting in blacks between the metal plates and filling in holes such as along the rails and the seams along the back of the sword. Also paint in some orange lights, much like on the character, to help give the gun a splash of color (**Fig.36**).

Fig 36

To begin the weapon's Specular map grab the Ambient Occlusion layer and drop it over a light gray background (**Fig.37**).
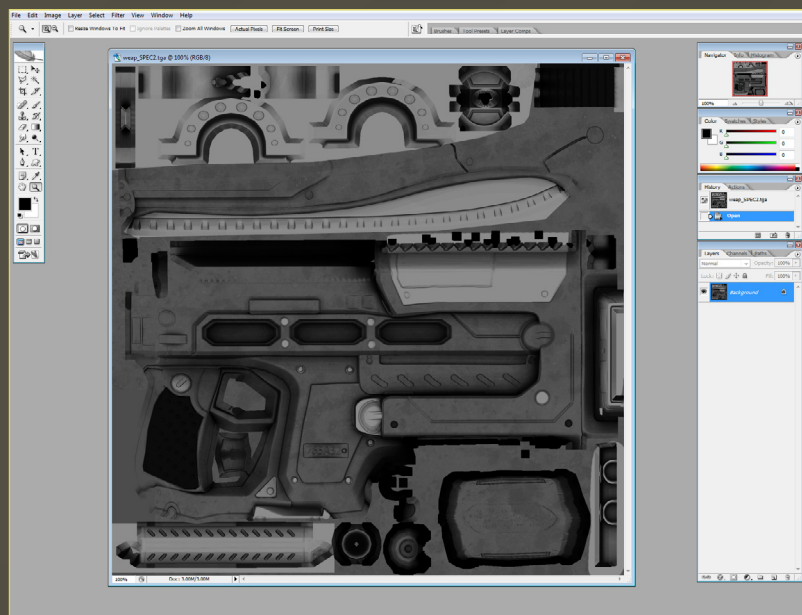
Fig 37

Fig 38

Further define the shading and line work created in the diffuse texture to separate the different mechanical and metal areas. At this point you can really see how much work the Specular map does, both on the character and the weapons, as the grunge map comes into play. The actual metallic surface is fairly clean and technically has no color change, but the Specular map will control how light is reflected off of the surface and this will really help sell the metallic look. Had we baked this information into the diffuse texture, the metal would appear more like concrete with flakes of black and white in the surface itself (**Fig.38**).
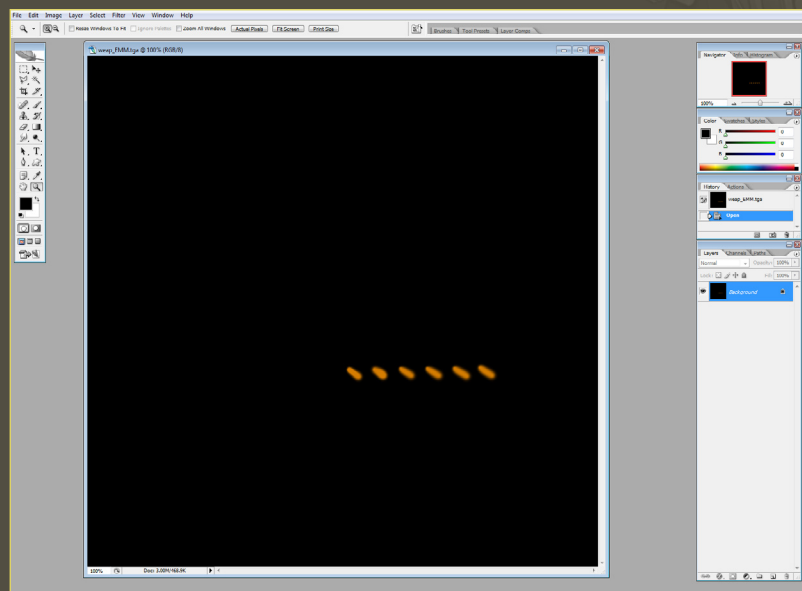

Fig 39

To finish off the weapon textures grab the lights you previously painted and drop them on a black background to create our weapon's Emmissive map (**Fig.39**).
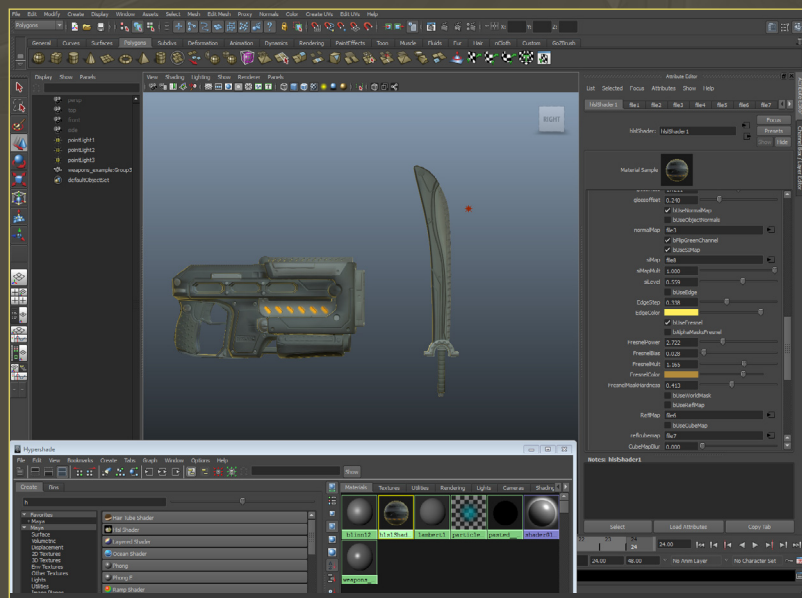

Fig 40

Finally load all of the textures into Maya and view the final result before posing the character model with accessories, and bringing it all into Marmoset for the final presentation shot (**Fig.40**).

GAVIN GOULDEN

For more from this artist visit:

http://www.gavimage.com/

Or contact him at:

gavin@gavimage.com

3dtotal.com

Is a resource website for the CG community; amongst our growing number of products for CG artists, we produce two monthly downloadable PDF magazines – *2DArtist* and *3DCreative*. We are based in the West Midlands, in the UK, and our intention with our magazines is to make each issue as full of great articles, images, interviews and tutorials as possible. If you would like more information on 3DTotal or our magazines, or if you have a question for one our team, please use the links below.

Contact Information

http://www.3dtotal.com

http://www.3dcreativemag.com

http://www.2dartistmag.com

Editor & Content Manager > Simon Morse

simon@3dtotal.com

Lead Designer > Chris Perrins

chrisp@3dtotal.com

Marketing > Tom Helme

tomh@3dtotal.com

Partners

If you have a CG community website and would like to support *3DCreative* and/or *2DArtist* magazine by showing our banners, please contact Lynette Clee at the email address above